

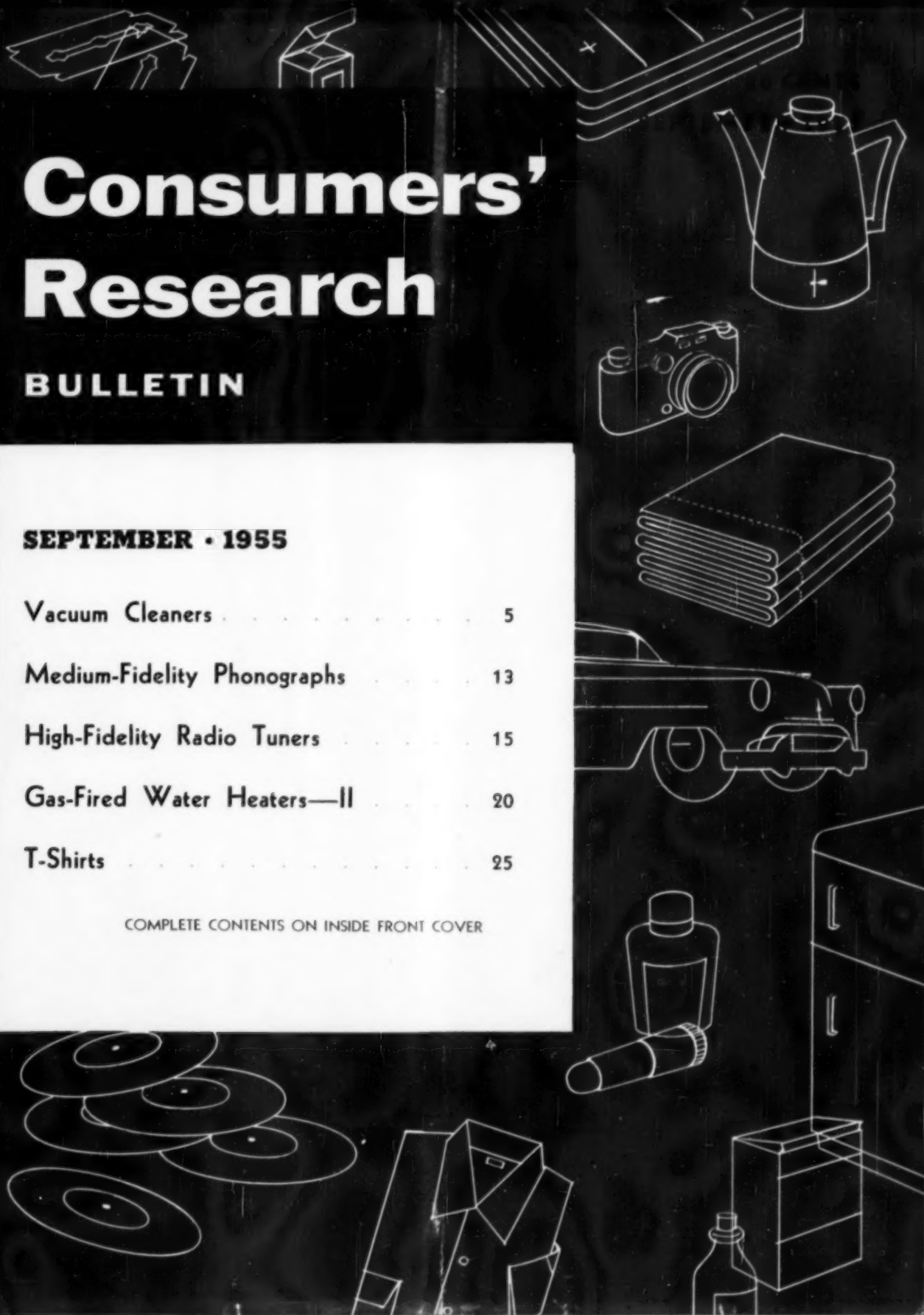
Consumers' Research

BULLETIN

SEPTEMBER • 1955

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Consumers' Research Bulletin

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Consumers' Research functions to provide unbiased information on goods bought by ultimate consumers. For their benefit (not for business or industry) and solely with the funds they provide, CR carries on tests and research on a wide variety of goods, materials, and appliances, and publishes the findings in CR BULLETIN. Consumers' Research is a non-profit institution, and is organized and operates as a scientific, technical, and educational organization.

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OFF THE EDITOR'S CHEST

ARGUMENT goes on at great length in scientific circles over the effects of U. S. atomic bomb tests on the present population and future generations. Scientists who like to air their views publicly can usually make page one of the big city newspapers or get their pictures in weekly news magazines by viewing with alarm the horrors that may be visited on civilians in super-bomb warfare. Apparently the general public is not greatly impressed by these warnings, for officials complain loudly that civilian defense organizations have not been able to secure support or muster any great following.

Of much more practical concern to the average citizen are the by-products of the current H-bomb discussions, which have brought to light the fact that certain peacetime medical practices need to be looked at with a critical eye to determine whether medical X-rays are being applied too freely and, in some cases, too carelessly. Chest X-rays are recommended on a yearly basis in many localities. X-rays are used after accidents and injuries to find broken bones, and they are much used also in diagnosing troubles of the digestive tract. In addition, X-rays are applied in various medical treatments. Dentists often take X-ray negatives for locating cavities in teeth. There is a widely-used fluoroscope device that employs X-rays to determine the fit of shoes, particularly in children.

Statistics on radiologists who work with radioactive substances indicate that 8 to 10 times more radiologists die of leukemia (cancer of the blood) than do those who work in other fields. Studies of 10,000 youngsters indicated that radiologists' children suffered more from heart, blood, and eye defects than those in the relatively unexposed group. One outstanding scientist takes the position that the genetic hazards (the effect on future generations) of the actual bomb tests are probably not as great as the genetic dangers of incautiously adminis-

(Continued on page 30)

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It will be advantageous if you will, whenever possible, send prompt notice of change of address at least 5 weeks before it is to take effect, accompanying your notice with statement of your old address with name in full. At least a month's notice must be given in any case. This rule, however, regarding long advance notice does not apply to military personnel. CR will, of course, gladly change addresses for men and women in the services as often as required by changes in station and other circumstances.

Symbols used to indicate sources of data and bases of ratings: AA—regarded as worthy of highest recommendation; A—recommended on basis of quality; B—intermediate with respect to quality; C—not recommended on basis of quality; cr—information from Consumers' Research's own tests or investigations; 1,2,3—relative prices, 1 being low, 3 high. Note that price and quality are completely differentiated in CR's listings; a quality judgment is independent of price; 54, 55—year in which test was made or information obtained or organized by the staff of Consumers' Research.

The Consumers' Observation Post

COFFEE is reported to be going farther these days. Where the housewife used to get 45 cups to the pound, she now extracts 62 cups from the same amount. The quality of the current brew is characterized as "brown water" by a coffee trade association executive, according to Food Field Reporter.

* * *

DYNEL FLEECE COATS are expected to be popular this fall and winter. Dynel is a synthetic fiber made by Carbide and Carbon Chemicals Company, which may be either knitted or woven to produce a fabric that is considered a practical substitute for high-priced cashmere. According to a report by the National Institute of Drycleaning, the fabric is washable or wet-cleanable but other construction features of a dynel garment cannot be expected to stand up satisfactorily under laundering. If dynel fleece coats are dry cleaned, they require special handling in order to avoid fabric damage. Be sure to put your dry cleaner on notice if you take a coat of this type to him for cleaning.

* * *

THAT OLD JOKE about going to the doctor for a sugar pill to make you feel better really has some basis in fact. At the last American Medical Association convention Dr. Henry K. Beecher of the Harvard Medical School reported that placebos have a high degree of therapeutic effectiveness in treating subjective responses in studies covering a wide area including wound pain, headache, nausea, anxiety, tension, and the common cold. For the uninitiated, a placebo is defined by one medical dictionary as "a medicine given for the purpose of pleasing or humoring the patient."

* * *

CAMERAS IMPORTED from the Soviet Zone of Germany in 1954 amounted to more than a million and a half dollars. The American Legion Magazine has called attention to the fact that if the cameras were properly marked with the country of origin, as the law requires, there would undoubtedly be fewer sales. After checking three large camera stores in New York City, the magazine's editor suggested that dealers in the United States are apparently selling Soviet Zone cameras inadequately identified. Consumers who have purchased cameras of German make and who do not wish to patronize Soviet-made products should scrutinize the markings on their cameras closely and report to the Federal Trade Commission any markings which appear to be tampered with or altered in any way to conceal their "Germany (Soviet occupied) or (USSR occupied)" origin. Check your local camera store and call the matter to the proprietor's attention also. A dealer who sells a foreign-made camera that is not properly identified as to country of origin is subject to penalties of fine or imprisonment.

* * *

FLAVOR AND AROMA that make a kitchen smell so delectable when good food is cooking may someday be produced artificially. At least that is one of the goals of the Armour Research Foundation which is studying artificial preparations of amino acids and sugar in neutral carrier materials. In this connection, the Foundation proposes a fundamental study to find out why foods taste and smell as they do.

* * *

FINGERNAILS THAT PEEL, chip, or split into mica-like layers may be greatly improved by including gelatin in the diet. Drs. Saul Rosenberg and Kurt A. Oster of Bridgeport, Conn., reported that 7 gm. [1 tablespoonful] of gelatin daily in water or fruit juice was effective in 26 of 36 cases in a three-month period. They observed that nail fragility often decreased in a few weeks after the gelatin treatment.

GARMENTS SHOULD BE CLEAN before they are put away either for the summer or the winter. Recent experiments by the National Institute of Dry-cleaning have shown that when certain food and animal stains are present on garments or household textiles they are alluring to moth larvae. Gravy, eggs, or other protein foodstuffs are excellent bait, and the N.I.D. reports that moth larvae will cut away all non-food material that obstructs getting to this food source. In one investigation it was found that actual fabric damage was greater in a blanket of only 25 percent wool than in one which had an all-wool content. The moth larvae cut through the non-wool fibers of the 25 percent wool blanket to get to the wool itself. It is obviously wise to put all garments away clean.

* * *

HOUSEHOLD ALUMINUM FOIL is often used in the kitchen to save cleaning work. Sometimes, however, it may save washing but produces certain disadvantages. In an interesting training program put out by the Home Economics Department of the Philco Corporation, it is pointed out that aluminum foil placed over the entire broiling rack may cause poor browning and better results will be achieved if just a small piece is placed under the food. Another difficulty is experienced when the drip pan beneath the surface unit of a range is covered with foil in cases where the oven vent is located directly under the surface unit to carry off steam and moisture from the oven. If foil is used in that location there should be a hole punched in it to permit the escape of steam.

* * *

IF A GARMENT IS LABELED "WASHABLE," it should not shrink, fade, or lose its original beauty when washed by any means the consumer chooses to use. How many have found that garments labeled "washable" will live up to that description? In any event, one of the representatives of American Viscose Corporation proudly boasts that any rayon garment treated with the Avcoset process can be expected to live up to those specifications and points out that all rayon fabrics to be eligible to bear the trademark Avcoset must meet the colorfastness requirements for a washable fabric given in American Standard L22.

* * *

CHILDREN WHO ARE NOT PERMITTED TO HAVE CANDY AND SOFT DRINKS are likely to have better teeth than those who are allowed to develop a taste for sweets. That is the conclusion to be drawn from continuing studies being made by Dr. James J. Macmillan of Carbondale, Pa. Dr. Macmillan suggests that the only sweets in a child's diet should be dessert eaten at the end of the family meals. He found that children who were allowed a moderate amount of candy and soft drinks developed a taste for sweets that was not easily satisfied and was at times uncontrollable. On the other hand, children who were not permitted to have sweets showed no craving whatever and sometimes even refused desserts. Dr. Macmillan plans observations at future stages to see whether the lack of desire for sweets will remain with this particular group indefinitely.

* * *

FALL FURNITURE SHOPPERS may find prices higher on a number of items. Most manufacturers at the Chicago showing this past summer had increased prices 3% to 5%, according to The Wall Street Journal, and retailers expect to pass the boost along to their customers. At the summer home furnishing market it was also noted that some manufacturers observed a consumer trend toward more frequent buying of lower priced furniture, getting away from fine custom furniture that could be handed down as heirlooms.

* * *

PAJAMAS are now staging a remarkable comeback, according to the New York Times. No mention is made of what has been substituted for pajamas in the recent past when they suffered a decline, or perhaps there was nothing to report.

(The continuation of this section is on page 33)



Vacuum Cleaners

Rear row: Air-Way, Westinghouse Upright, General Electric.

Second row: Westinghouse Canister, Filler Queen.

Front row: Hoover Holiday.

IT IS common practice nowadays in the appliance business to offer what are supposedly very generous trade-in allowances on used equipment in order to increase volume of sales of new equipment. Don't feel sorry for the dealer who quietly whispers to you that he's losing money on the item you are buying because of his generous allowance or large discount—both are a customary and accepted part of the sales picture; the allowance on the old cleaner simply provides a convenient means of allowing a substantial discount in a highly competitive market without being stigmatized as a "price-cutter" or chiseler. A high proportion of the vacuum cleaners turned in for allowance on new cleaners are junked by the dealer, because their value to him is very low, often negligible. (Some even go so far as to mutilate the old but still usable cleaner so that it can never be used again and so interfere with sales of new ones.) If your dealer offers you an allowance of from \$5 to \$15 for your old cleaner which may still be in fairly good operating condition, he might be willing, if the suggestion is

rather strongly made, to give you the price reduction and let you keep the old cleaner. Many relatively old upright cleaners will be as effective in use on rugs as some of the newer tank and canister cleaners, and the consumer should bear in mind that many cleaners that are old but in good mechanical condition are still doing a first-rate job of rug cleaning. Home economists have come to the conclusion, based on the experience of many housewives, that the average home will be better served by two cleaners, e.g., an upright and a tank or canister, where the extra expenditure can be afforded. The extra cost will be small if one of the cleaners can be an old one or one bought at a secondhand store at a very reasonable price.

In CR's recent tests, prices of the vacuum cleaners have fallen in the wide range of four to one, of from about \$196 to \$50. While the prices of cleaners of different kinds (e.g., upright, tank, and canister) vary considerably from one make to another, a tank cleaner will, as a rule, be least expensive (average about \$75), canisters will

The vacuum-cleaner industry is probably the most highly competitive in the appliance field. For that reason, a manufacturer may often alter a previous model or design whenever he finds his sales position slipping. Consumers, however, should bear in mind that the fact that a model is new doesn't mean that it is necessarily better than previous ones. It sometimes happens that a new cleaner may represent a step backward in design or efficiency, and this the consumer should have in mind when he is urged to give up his old appliance and hand out \$100 or more for a new one alleged to represent the last word in vacuum-cleaner performance, efficiency, convenience, and versatility.

The cleaners reported in this article are, for

the most part, models which appeared after CR's last report on vacuum cleaners in the January 1955 BULLETIN. It is impossible, however, to keep the information on new models completely up to date, simply because manufacturers do not announce new models at a particular time of the year as do the makers of television receivers or automobiles, for example. Thus, reports on the Hoover Constellation and the General Electric Roll-Easy, both recently announced, could not be included in the present article. ¶As has been indicated, there may be new models which are not significantly different from or more efficient than previous ones, but they will still provide the salesman an "angle" on which to make the prospective customer feel that his present cleaner is out of date.

average about \$85, and an upright with revolving brush and a set of attachments will be the most expensive (average about \$100).

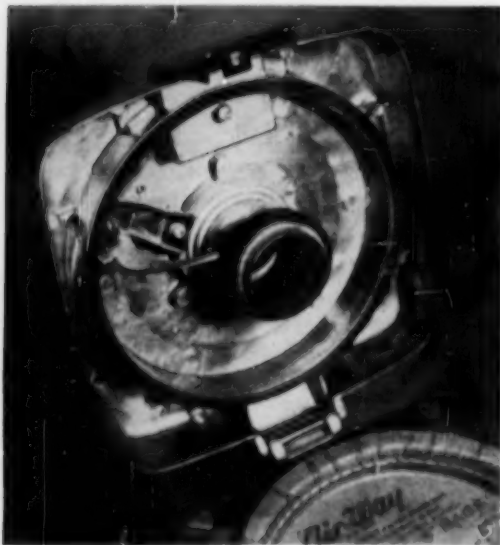
If you are interested principally in keeping the rugs clean in your home, then your best buy will be a good upright cleaner such as the *Westinghouse FA-12* or the *Hoover 63*. Both of these showed up very well in CR's tests for speed in removal of dirt from rugs. If circumstances require that you must limit yourself to one cleaner, you will likely be better satisfied overall with a

good canister or tank cleaner; these depend mainly upon suction for their ability to remove dirt and dust. As a rule, the tank and canister cleaners do not do as good a job of removing deeply-embedded dirt as an upright, but they are normally much more convenient to use with attachments for above-the-floor cleaning and considerably more efficient in that use because of their high suction capabilities.

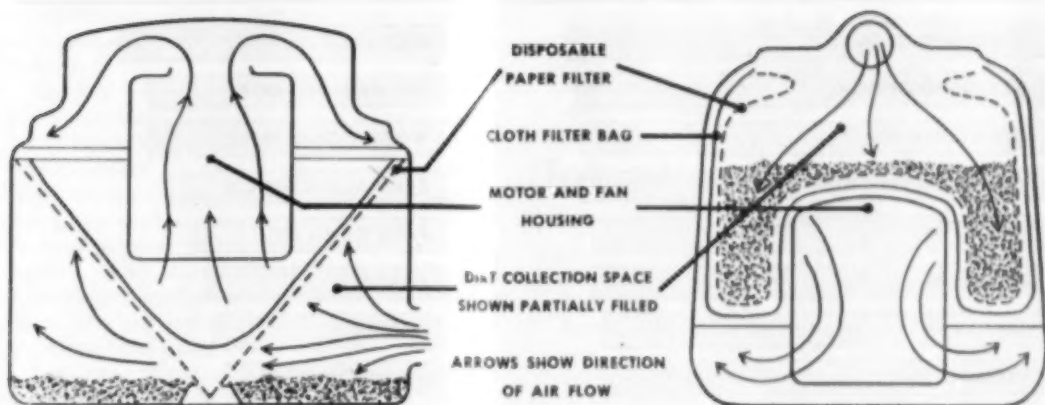
No matter what type of cleaner you expect to buy, it is a good idea to try two or three different models out in your own home for a short period; most dealers will extend this courtesy. If your house or apartment is very small, or you have very expensive Oriental rugs and very little traffic in most areas of your home, an inexpensive cleaner such as the *Regina Elektrikbroom* or the *Westinghouse Porta-Vac* may be very well suited to your needs.

You will likely find, as many have, that the above-the-floor cleaning attachments furnished with an upright cleaner are comparatively inconvenient to use. In many homes, they end up in the attic or storage closet, unused. A set of attachments for an upright cleaner is usually furnished at an extra cost of \$15 to \$25 or more. CR doubts greatly whether most users would find the purchase worth while.

It has been estimated that 2,650,000 vacuum cleaners were sold in 1954. Of this number, from 45 to 60 percent were canister cleaners. Information in trade magazines indicates that the tank cleaner is losing in popularity to its newer brother, the canister. Doubtless the growing trend to canister cleaners is a reflection of the housewife's demands for a kind of appli-



Photograph showing the arm at the left of center built into the cap of the Air-Way which prevents operation of the cleaner when the paper bag is not in place.



Line drawings showing method of operation of two canister vacuum cleaners with disposable paper filters. In the cleaner on the left, the dirt is collected in the bottom of the canister which must be turned over to empty it. On the right, the paper filter—in the general shape of a bag—is discarded when cleaner efficiency is seen to decrease noticeably. The design on the right has the advantage of better stability, because the heavy motor is close to the base.

ance which is easier to use, handle, and move about than vacuum cleaners of earlier types. It's certainly much less work to place the cleaner in the middle of the room and clean in all parts of the room or even in the next room by moving the hose and wand than it is to pull or jerk a cleaner behind you. Some manufacturers such as Lewyt, instead of using the swiveling hose connection, put their cleaners on large wheels so that they are readily moved and turned merely by a slight pull on the hose. This design allows the operator to place the cleaner centrally in a room and use it to clean the whole room without undue effort, and without need for a swivel top. This later method would seem preferable to the use of "runners" found on many tank-type cleaners, and will likely be just as convenient in use as the swivel top.

Manufacturers have introduced many improvements in convenience of their vacuum cleaners. Among these is the wide use of disposable paper-bag dirt collectors which are meant to be discarded when they become partly filled. Paper bags save a lot of trouble and inconvenience that went with the old method of shaking a dust-laden cloth bag until it was empty and then wrapping up and disposing of that part of the dirt that didn't drift about the room or porch. However, the paper bags do not come cheap, and it may cost the not inconsiderable sum of \$5 to \$15 a year to have this extra convenience.

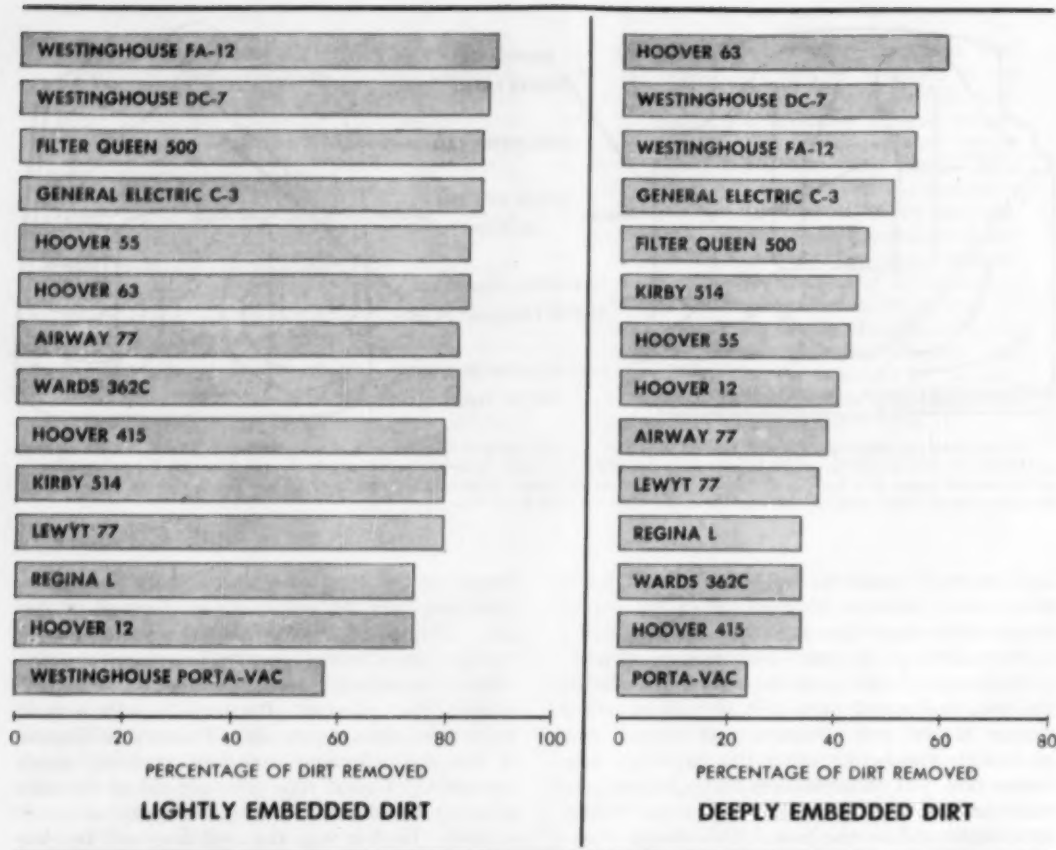
Whether she chooses a reusable cloth or disposable paper bag, the homemaker should remember that the efficiency of a cleaner drops off considerably as the dirt collector becomes filled.

Homemakers sometimes forget this and postpone too long the emptying or disposal of the bag. This greatly handicaps any vacuum cleaner, since the effective vacuum is reduced greatly when a considerable amount of dirt has accumulated in the collector. Particularly with a tank or canister cleaner, one should empty or dispose of the dirt-collecting container at fairly short intervals. A good rule is to get rid of the dirt after each weekly cleaning, or more often if needed. In that way the appliance will be able to put forth its best efforts the next time it is to be used.

Since the nozzle must lie at the proper angle,

On the upright cleaner, it is normal practice to put the paper-bag dirt collector inside a cloth bag of the usual kind.





flat on the rug surface, in order to clean most effectively, the user should determine by trial the angle at which the wand of the tank or canister cleaner should be held in order to put the nozzle in the most favorable position. Strokes about two feet long should be used. These are more effective than the longer strokes, since with the latter the nozzle tends to rock (change its angle) on the rug with a consequently reduced efficiency during part of the stroke.

CR's tests

Various factors are taken into consideration in testing of a vacuum cleaner by Consumers' Research. Since the cleaner's primary function is to remove dirt from the rugs in a home and do that job in the shortest practicable time, CR places its principal emphasis on the results of tests which determine the effectiveness or speed of picking up dirt.

Each rug-cleaning test consists of four different runs over a test carpet in which a prepared

mixture of dirt has been embedded in varying degrees to simulate soil on the surface, soil that is lightly embedded, soil moderately embedded, and soil that is deeply embedded. During these four runs, the dirt-collecting device or bag is not emptied. Thus we are able to observe the degree to which the dirt collector clogs and reduces efficiency of the cleaner. The tests are made in a room in which the temperature is maintained at 70 degrees and the relative humidity at 50 percent. The results of the tests with surface- and lightly-embedded soil are averaged and reported as dirt-removing ability for lightly-embedded soil. Similarly, the results of the tests with the moderately- and deeply-embedded soil are averaged and reported as dirt-removing ability for deeply-embedded soil. (See charts on this page.)

A glance at the charts will indicate that most cleaners, whether upright, tank, or canister, are rather efficient in removing superficial dirt. On the other hand, there are marked differences in

the ability of various makes and types of cleaners to remove soil which has become deeply embedded.

Some of the other characteristics measured in CR's tests include weight of the vacuum cleaner, watts input when cleaning, and amount of suction (vacuum). Other items observed or measured appear in the various listings. Some use was given each cleaner by several homemakers in their homes, and their comments were recorded. When a majority of these users reported a particular advantage or disadvantage in respect to a particular cleaner, appropriate comment has been made in the listings.

Leakage current is a measure of any shock hazard that might be present on the new cleaner. The high-voltage breakdown test gives an indication of the probable life and safety of the electrical insulation and the care taken in selection of materials and their assembly to insure against possible future deterioration of the insulation. Vacuum cleaners are built to relatively high standards of electrical safety, for all of the cleaners in the present test passed both the leakage-current and the high-voltage breakdown tests. In the listings, the manufacturer's rated watts input is followed in parentheses by the watts input as measured in the laboratory. Cleaners were for operation on a.c. or d.c.; CR's tests were made on 60 cycle alternating current, at 118 volts.

Upright revolving-brush cleaner

A. Recommended

Westinghouse, Model FA-12 (Westinghouse Electric Corp., Springfield, Mass.) \$94.90, including attachments.

Description: Upright type, with revolving brush. Weight, 18.5 lb. Rated watts, 450 (445). Disposable paper-bag dirt collector. Cord length, 21 ft. Cleaner is provided with wheels similar to a "3-stepped pulley" (with shallow steps—about 1/32 in.) that tend to maintain correct spacing relationship between nozzle and rug surface, and thus eliminate need for manual or foot adjustment; on long-pile rugs, for example, all 3 "steps" are in contact with the rug and prevent it from sinking into the pile as it would if narrow wheels were used. Users considered this feature advantageous. Method of connecting bag to cleaner housing was judged poor. The rubber gasket was thin and did not effect a good seal; on this account, dust leaked past it into the air of the room. While it is likely that some samples of this model may be satisfactory in this respect when the cleaner is relatively new, it is felt that difficulty may be experienced eventually because of the type of connection referred to.

Performance in test: Dirt-removing ability: for lightly-

embedded soil, very good; for deeply-embedded soil, very good. Suction lift, an indication of the efficiency of the attachments for cleaning curtains, upholstery, etc., low. Comparatively noisy during operation. Slight radio and television interference. 2

Tank and canister cleaners

A. Recommended

General Electric, Model C-3 (General Electric Co., Bridgeport, Conn.) \$69.95, including attachments.

Description: Canister. Weight, 27 lb. (relatively heavy). Rated watts, 660 (745—too high in relation to the manufacturer's rating). Disposable paper-bag dirt collector; this was considered difficult to put in place. Cord, 16.5 ft. Cleaner had to be lifted in moving from room to room (note its weight), or could be pulled on a small "dolly" furnished with it. Swivel connection at top, desirable. Cleaning nozzle (one side for rug cleaning, other side for smooth floors) is locked positively to aluminum-tube wand section (a desirable method of fastening) and "flipped" to side operator desires to employ. While this would appear to be a convenient arrangement, users complained that, when cleaning scatter rugs with short strokes in one direction, the nozzle when raised from the floor did not stay in the desired position. A brush for lint removal is a permanent part of the rug nozzle. Metal from the aluminum wand section rubbed off and soiled the operator's hands. The nozzle, made of plastic and sheet steel, did not leave a mark on rugs.

Performance in test: Dirt-removal ability: for lightly-embedded soil, good; for deeply-embedded soil, good. Suction, an indication of the efficiency of the attachments for upholstery, etc., low to medium (adjustable; for certain cleaning, as of curtains, etc., it may be desirable that the suction should not be too high). Noise during operation, moderate. Radio interference, slight; television interference, excessive. 1

Westinghouse, Model DC-7 (Westinghouse Electric Corp., Springfield, Mass.) \$69.95, including attachments.

Description: Canister. Weight, 21.5 lb. Rated watts, 675 (620). Disposable paper-bag dirt collector. Cord length, 19.5 ft. The whole body of the cleaner swivels on a bottom plate as the user changes her position in the room. Moving the cleaner from place to place is best carried out by lifting it with its handle, a disadvantage to some users because the weight was above average. Nozzle is locked positively to aluminum-tube wand section, as is desirable. Metal "gleaner" in nozzle, for lint removal, positioned by hand control, is somewhat difficult to adjust. Wand section is adjustable in length (8 in. adjustment) to accommodate users of varying heights and thus provide proper relationship between the nozzle and the surface being cleaned (see text).

Performance in test: Dirt-removing ability: for lightly-embedded soil, very good; for deeply-embedded soil, very good. Suction, an indication of the efficiency

of the attachments, high. Relatively quiet in operation. Radio and television interference, slight. **1**

Filter Queen, Model 500 (Health-Mor, Inc., 203 N. Wabash Ave., Chicago 1) \$149.50, including attachments and dolly.

Description: Canister. Weight, 26 lb. Rated watts, 650 (590). Uses disposable conical paper filters (not bags), so that dirt must be emptied from cleaner by hand. Cord length, 19.5 ft. Cleaner had to be lifted in moving from room to room (note its weight), or could be pulled on a dolly (preferable). Nozzle locked positively to steel-tube wand section, desirable. Cleaner on dolly turns as required by user's movements. Brush for lint removal, positioned by a hand control, made nozzle difficult to push on rugs.

Performance in test: Dirt-removing ability: for lightly-embedded soil, good; for deeply-embedded soil, good. Suction, an indication of the efficiency of the attachments, high. Relatively quiet in operation. Radio interference, moderate; television interference, slight. **3**

B. Intermediate

Hoover Holiday, Model 415 (Hoover Co., North Canton, Ohio) \$79.95, including attachments. Made in England.

Description: Tank type. Weight, 19.5 lb. Rated watts, 500 (460). Disposable paper-bag dirt collector. Cord length, 18.5 ft. Cleaner is pulled after operator on steel runners. There is a friction fit between nozzle and aluminum-tube wand; a positive locking method like that used on Westinghouse DC-7 is more desirable. Brush for lint removal is positioned by hand control.

Performance in test: Dirt-removing ability: for lightly-embedded soil, good; for deeply-embedded soil, fair. Suction, an indication of the efficiency of the attachments, medium. Noise during operation, moderate. Radio and television interference were excessive. **2**

Air-Way, Model 77 (Air-Way Branches, Inc., Toledo, Ohio) \$122.50, including attachments.

Description: Tank. Weight, 21.5 lb. Rated 115 volts, 5 amperes (630 watts). Disposable paper-bag dirt collector. Cord length, 19 ft. Cleaner body rests on 4 legs, and top swivels (which is desirable), or cleaner can be slid from place to place on steel runners. Stability of the cleaner when resting on its legs was poor. Nozzle is locked positively to aluminum wand section, desirable. Brush in nozzle for removing lint is moved into position by a slight rotation of the wand section, an arrangement which required that the operator bend slightly when picking up lint and use the wand in a rather inconvenient manner. Wand section and nozzle both made of polished aluminum. Metal from the aluminum wand section rubbed off and soiled the operator's hands; nozzle rubbed off noticeably on light-colored rugs.

Performance in test: Dirt-removing ability: for lightly-embedded soil, good; for deeply-embedded soil, fair. Suction, low to medium (adjustable—see comment under General Electric C-3). Noise during operation,

moderate. Radio interference, moderate; television interference, slight. **3**

* * *

The following vacuum cleaners were previously reported in CR BULLETIN for January 1955. Brief listings are included for the benefit of those subscribers who may not have that BULLETIN conveniently available.

Upright revolving-brush cleaners

A. Recommended

Hoover, Model 63 (The Hoover Co., North Canton, Ohio) \$125. Cleaning attachments, \$25 extra. **3**

Kirby, Model 514 (The Scott & Fetzer Co., 1920 W. 114 St., Cleveland 2) \$196 complete. **3**

B. Intermediate

Hoover Lark, Model 12 (The Hoover Co.) \$90. Cleaning attachments, \$15 extra. **2**

Tank and canister cleaners

A. Recommended

Hoover, Model 55 (The Hoover Co., North Canton, Ohio) \$97, including attachments. Tank. **2**

B. Intermediate

Wards, Model 45 AC 362C (Montgomery Ward & Co., Baltimore) \$70, including attachments, at retail store. Canister. Cat. No. 85—362MO in 1955-56 Fall and Winter Catalog at \$67 appears similar. **1**

Lewyt, Model 77 (Lewyt Corp., 60 Broadway, Brooklyn 11, N.Y.) \$90, including attachments. Canister. **2**

Vacuum cleaners for light service

The following two cleaners have the special advantage of very light weight, but this goes with a corresponding deficiency in speed and thoroughness of cleaning.

A. Recommended

Regina Elektrikbroom, Model L (The Regina Corp., Rahway, N.J.) \$50. Upright without revolving brush. **2**

Westinghouse Porta-Vac, Model T-12 (Westinghouse Electric Corp., Springfield, Mass.) \$50. Portable tank. **2**

Leaf Removal from Lawns

AS the leaves begin to fall, many homeowners with large lawns and shade trees are faced with the backbreaking job of collecting and removing the leaves from their lawns. The simplest method is, of course, the old-fashioned rake, a lawn cart or barrow, and plenty of elbow grease; this equipment will serve well enough when the lawn is small, but its use becomes a real burden when the lawn is big and there are many trees. Those who own a rotary- (whirling-blade) type mower can obtain a leaf-mulching attachment which does a good job when the leaves are dry. This combination has the advantage that it eliminates the problem of disposing of the leaves; it pulverizes them and provides food for the lawn. Oak leaves should not be ground up and left on the lawn, unless lime is added to counteract their acidity.

Mulching by this method causes much spreading of dust, and unless the air intake of the engine of the mower is properly guarded, the life of the engine will be greatly shortened. An oil-bath air filter, properly and frequently serviced, is considered the best means for separating leaf dust from the air. For added protection, a small cloth bag of the kind supplied as containers



for tools and extra parts can be tied over the air filter.

Those who do not own a rotary (whirling-blade) mower and would not wish to own one under any circumstances, because of the danger of serious accidents which can occur with their use, may wish to purchase a lawn sweeper. These machines, which are available for both hand and power operation at prices ranging from about \$25 up, are similar in action to the familiar carpet sweeper except that they have a large basket to catch the leaves. As the various hand-propelled lawn sweepers on the market appear to be pretty much alike in design, CR purchased and tested one brand in order to obtain an evaluation of the ability and speed of such devices in gathering leaves and debris from a lawn, and ease of operation compared to hand raking.

The *Craftsman* sweeper did a relatively good job of removing dry leaves and it was not hard to push, provided the brush was not adjusted to be too close to the ground. Some leaves were missed and a person who is very particular about the appearance of his lawn would need to go over the lawn a second time to get a fully satisfactory job. The sweeper was at least twice as fast as hand raking the leaves into piles, and considering the time taken to transfer the hand-raked piles to a lawn cart, barrow, bag, or tarpaulin, the lawn sweeper would be 3 or 4 times as fast. In order to get the maximum amount of leaves in the basket, it was necessary to operate the device at a speed sufficient to throw the leaves to the rear of the basket; other-

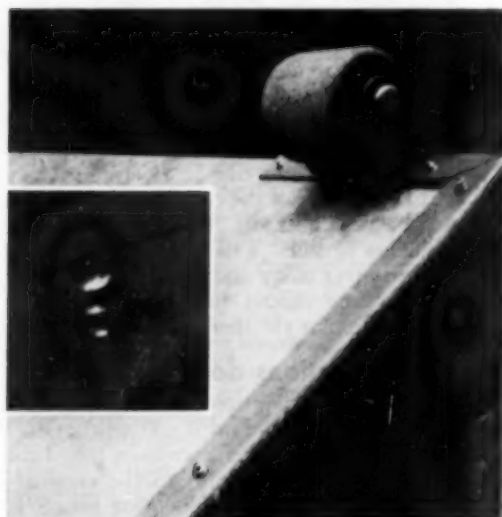


Figure 1

View of bottom of Sears' sweeper, showing sharp projecting points of sheet-metal screws used as fastenings.

wise it was necessary to stop frequently and push the collected leaves to the rear. A lawn sweeper would usually be considered a desirable purchase only for a person having a rather large lawn.

Sweeping up grass clippings is one of the chief advertised uses of these machines, but grass clippings are better left on the lawn if they are short (that is if grass is cut about once a week). If the method of cutting with a rotary mower is such that the clippings are deposited in windrows or if the grass is cut infrequently, a lawn sweeper can be used to advantage.

B. Intermediate

Craftsman Lawn Sweeper (Sears-Roebuck's Cat. No. 99-8387) \$35, plus freight. Pressed steel frame with tubular steel handles. 10-in. diameter

wheels with solid rubber tires; also two 2-in. diameter wooden rollers at rear of basket. Brush reel had four fiber brushes, and was mounted in ball bearings. Height of the brushes above the ground was adjustable by means of two wing nuts. Basket made of green duck material with galvanized steel bottom. Spring-mounted handle permits raising and lowering brushes by pressure on handle when sweeping on uneven ground. Width of swath, 24 in.; basket holds $6\frac{1}{2}$ bushels. Size collapsed for storage, 31 in. x 13 in. x 62 in. Size not collapsed, 31 in. x 40 in. x 51 in. Weight, 49 lb. The sweeper did a satisfactory job on dry leaves on level ground, but was somewhat hard to push on uneven ground when brush was set low. Well made, except for the basket which had sharp points of 13 self-tapping sheet-metal screws protruding as much as $\frac{1}{4}$ in. through its galvanized bottom (see Figure 1). The sharp points should have been removed from the screws by grinding, or nuts and flat-head or oval-head bolts could have been used for fastening. A smaller 20-in. model is available at \$26.50 which is similar except that it has oilless bearings and has a rigid handle instead of one that is spring mounted.

Care of Cesspools and Septic Tanks— proprietary chemicals not needed

MANY LETTERS come to Consumers' Research asking for information about the care and treatment of cesspools and septic tanks. The writers of a number of these letters seek information particularly about chemical preparations that are claimed to keep cesspools properly drained and in working condition.

Sewage disposal systems receiving human wastes usually present no problem so far as concerns the organisms that digest the sewage. When disinfectants, such as lye or other bacteria-killing materials, are added in sufficient quantity, the digestive action stops. Any concentrated bacterial starters that might be used will also be killed, as soon as they are added. Therefore, as long as the harmful liquids reach the tank, there is no point in adding any form of living organisms.

One solution, in cases where disinfectants are in regular use, is to separate the waste lines so that toilet wastes go into the sewage disposal system and waste from sinks, washbasins, dishwashers, washing machines, dryers that use a water supply, or waste that may contain disinfectants or lye will discharge directly into a filter bed area.

According to information available to CR,

there is a tendency for cesspools and septic tanks to go slightly acid in action. This is an undesirable condition, since for the best bacteriological action the liquid should be just slightly on the alkaline side. An occasional handful of hydrated lime washed down the toilet helps correct the tendency toward acidity and so improves digestion of the sewage.

Cesspools become inoperative because of the pasting action of the fluids on soil particles. To some extent, failure can be postponed by placing at the bottom of the cesspool as much as a bag or a bag and a half of lime mixed into two or three inches of soil. This tends to keep the soil from becoming pasty and impervious to the liquid. The lime should be in the form of agricultural lime, not the lime used by builders.

Enzyme preparations do not help

Various enzymes being sold for assisting the digestive process in grease traps and septic tank or cesspool disposal systems have been found to be neither helpful nor harmful to the disposal action. In short, the householder has no need to use them, and will get along just as well if he lets nature take its course. No special "medicines" are needed.

Medium-Fidelity Phonographs

IN the November 1954 BULLETIN, CR reported on nine ready-made phonographs which it classed as "medium fidelity." The advertisements of various manufacturers of such equipment have consistently claimed true high-fidelity performance for instruments of this kind. While it is true that they offer much better audio performance than was available previously in commercial record-playing equipment, there was only one, the *Magnavox Magnasonic*, that could be rated *A. Recommended* on the basis of requirements that would reasonably be applied to high-fidelity record players. The other players, though claimed to be high fidelity, were not in the hi-fi class, and CR has rated them on their ability to supply reasonably good fidelity in reproduction of music. In the months since CR's November 1954 tests, advertising by manufacturers of record players has been more and more insistent on the point of good high-fidelity performance of the ready-made record players. Some advertising has argued that for really good fidelity at a reasonable price one *must* buy ready-made (factory-assembled) equipment rather than assemble any sort of equipment at home with high-fidelity components of pickup, amplifier, speaker, etc. This is definitely not true.

For the present test, Consumers' Research chose three widely advertised console models and one portable table model of well-known manufacturers and subjected them to the same tests as were applied to the group of players reported in the November 1954 BULLETIN, at page 22. Results of CR's tests show that these later instruments must also be placed in the class of *medium-fidelity* players. The best performer of the lot was the *Pilot Model PT-1010* portable. One console, the *Philco*, used an ac-dc amplifier (with no power transformer) which would seem out of order for an instrument priced at \$260; the ac-dc class of equipment is usually limited to cheaper items in a manufacturer's line, and consumers would expect a record player at a high price to have a higher type of circuit design than would be used in table-model radio receivers (which are built to fit into a price bracket rather than to furnish good performance).

For the same, or a lower price, as any of the players, one could assemble from parts (record changer, amplifier, speaker, and speaker en-

closure) record players which would give better performance and flexibility. (The *Pilot*, however, was an exceptional value for the money in a ready-made player.)

Leakage current, indicative of shock hazard, was not found on any of the four players. All four of the record players were "listed" by the Underwriters' Laboratories (*UL* listing gives assurance of good design from the standpoint of fire hazard).

Ratings are based on the ability of the record players to reproduce music with reasonably good fidelity. "Electrical fidelity" as reported refers to response of amplifier only.

A. Recommended

Pilot PT-1010 (Pilot Radio Corp., Long Island City, N. Y.) \$159.50.

Description: Portable table model. 11 $\frac{1}{4}$ in. high x 23 in. wide x 18 in. deep, with provisions for attaching legs for use as a console. For operation on 105 to 120 volts a.c., 90 watts. Had Garrard RC80 3-



Pilot PT-1010 Record Player

speed record changer with *GE Variable-Reluctance* cartridge. Amplifier had 5 tubes, plus rectifier. Push-pull output, with 6V6's. One 8-in. and one 6-in. PM speaker. Had provisions for external speaker, also external input jack. Controls on outside of cabinet: volume, 3-position record compensator, bass, and treble. Pilot light visible with lid closed.

Performance: Power output, 1.25 watts at 2½% distortion, 5 watts at 5% distortion. Electrical fidelity (tone controls in flat position), 45 to 9500 c.p.s. (6 db. down). Estimated over-all acoustical response, 60 to 10,000 c.p.s. Tone-control action, satisfactory. Turntable speed was satisfactorily accurate, and rumble and wow were not noticeable. As the switch which turns the player off at the end of the last record causes a loud snap in the speaker, a suppressor on this switch would be desirable. ¶ Except in watts output, comparable with any *A-Recommended* players in November 1954 CR BULLETIN except the *Magnavox Magnasonic*. 2

B. Intermediate

Philco 1755 (Philco Corp., Philadelphia) \$259.95.

Description: Console model. 34½ in. high x 24 in. wide x 15½ in. deep. 115 volts a.c., 75 watts. *Philco* record changer with ceramic cartridge. 4 tubes and 2 selenium rectifiers. Push-pull output, with 50L6's. One 10-in. PM speaker and one electrostatic (condenser) speaker. Controls, inside doors: on-off-volume, bass, treble. No record compensator, no pilot light. 2



Philco 1755 Record Player

Performance: Power output, 3.2 watts at 2½% distortion, 5.5 watts at 5% distortion. Electrical fidelity (tone controls in flat position), 45 to 7000 c.p.s. (6 db. down). Estimated over-all acoustical response, 80 to 9000 c.p.s. (fair—not up to *Philco's* claim of "Full Fidelity reproducer cuts distortion to an all time low"). Tone-control action, satisfactory. Turntable speed, satisfactory. Rumble not noticeable, but wow was noticeable on 33-1/3 rpm. and 45 rpm. speeds. Because of lack of pilot light, player might inadvertently be left on for extended periods. Use of ac-dc type (transformerless) amplifier seems unjustified in a player at this price. 3

RCA Victor 3HS6 (Radio Corp. of America, Camden 2, N. J.) \$289.95.

Description: Console model. 33 in. high x 32½ in. wide x 16¼ in. deep. 115 volts a.c., 90 watts. *RCA* 3-speed record changer with *GE Variable-Reluctance* cartridge. 5 tubes, plus rectifier. Push-pull output, with 6AQ5's. One 12-in. PM speaker. Controls, inside cabinet: loudness, bass, treble. No record compensator. Pilot light visible on outside.

Performance: Power output, 5.8 watts with 2½% distortion, 6.4 watts with 5% distortion (manufacturer's literature mistakenly refers to this as a "powerful amplifier"). Electrical fidelity (tone controls in so-called flat position), 45 to 2500 c.p.s. (6 db. down); maximum treble boost raises frequency response to 15,000 c.p.s. (6 db. down). Estimated over-all acoustical response, 80 to 8000 c.p.s. (not the claimed "realism of the concert hall"). Tone-control action sufficient only to flatten amplifier response with full bass and treble "boost." Actual emphasis (boost) not available. Turntable speed, satisfactory. Rumble, low. Slight wow on 33-1/3 rpm. speed. In listening test, player lacked brilliance that goes with a desirable amount of high-frequency response. 3

Webcor Ravinia 1139-2 (Webster-Chicago Corp., Chicago) \$264.95.

Description: Console model. 36 in. high x 27 in. wide x 19½ in. deep. 105 to 120 volts a.c., 90 watts. *Webcor* 3-speed changer with *GE Variable-Reluctance* cartridge. Amplifier had 4 tubes, plus rectifier. Push-pull output, with 6V6's. Two 10-in. PM speakers and one 3½-in. PM speaker. Controls, inside cabinet: bass-on-off-treble, audio level (volume). Controls on back were selector switches for external speaker and external input. No record compensator. Pilot light visible on outside.

Performance: Power output, 6 watts with 2½% distortion, 12½ watts with 5% distortion. Electrical fidelity (tone controls in flat position), 45 to 16,000 c.p.s. (6 db. down). Estimated over-all acoustical response, 100 to 8000 c.p.s. (not high-fidelity performance "for true realism" of all tones, as claimed). Tone controls provided cut or de-emphasis only. (Full boost position served only to bring amplifier to a flat response.) Turntable speed, satisfactory. Rumble was noticeable at full bass position, but wow not noticeable. General listening gives impression of insufficient bass compensation (sufficient bass not available). 3

For the convenience of those interested, we append a brief list of phonographs reported in the November 1954 BULLETIN. While these are 1954 models, it is thought that many are still available, or that later models of the same type of player will not be greatly different.

A. Recommended

Columbia 360K; Magnavox Magnasonic; Magnavox

Playfellow; Webcor Musicale 333-1.

B. Intermediate

Columbia 360; Stromberg Carlson HFP-1; V-M Triomatic 555-M.

C. Not Recommended

Motorola 53F2; RCA Victor 3-HES-5.

High-Fidelity Radio Tuners

THE greatest diversity in program material for a high-fidelity system is afforded by use of a radio tuner. Such tuners are available in three basic forms, the AM, the FM, and the combined AM-FM tuner. Variations of these will have basic tuning controls for the tuner or they may have, besides, a complete set of amplifier controls. The latter arrangement has the advantage of greater convenience; it puts all the controls at one point on the complete system. Some tuners include a phonograph preamplifier with its associated compensation circuits to suit various makes and types of records.

A basic tuner (one without controls) should be used with an amplifier which has its own tone controls and a preamplifier built into it (if a record player with a magnetic pickup is to be used). If the tuner has complete controls (volume, tone, record compensation), a simple basic amplifier that has no bass and treble controls, and sometimes no volume control, can be used.

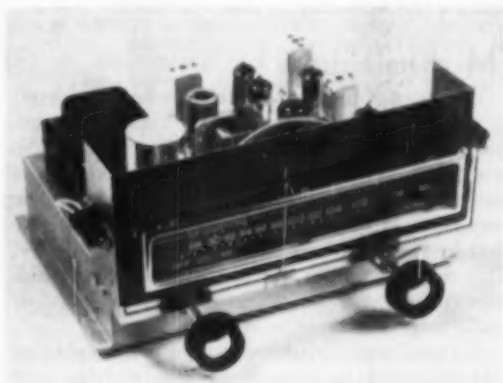
The choice of the type of tuner, either AM, or FM, or a combined AM-FM unit, will depend on many factors and the preferences of the user. Each kind of radio transmission has its peculiar characteristics, advantages, and limitations.

AM broadcasts

For reception approaching high fidelity on AM, there are problems quite different from those which affect the design of a tuner or radio of the type found in most homes. Two important characteristics are sensitivity and selectivity. Noise level in the signal received from all distant stations will be relatively high, and high-fidelity reception will not normally be available from such stations. There will be difficulty in reception from any stations where there is "crowding" of the AM broadcast band.

In an attempt to reduce the between-station noise and, of course, reduce the number of stations received that are located at a considerable distance, the sensitivity of an AM tuner for high-fidelity use will be kept low, intentionally. Low sensitivity will give a diminished selectivity (reduced ability to reject unwanted stations) and a resulting wider frequency response. This in turn tends to give good fidelity and tonal qualities.

Unfortunately, AM stations in some localities are often so closely spaced frequency-wise, that unless the listener is situated close to a broadcasting station whose signal is very strong he will be troubled by interference from other stations near in frequency to those he wishes to receive. This interference will sometimes be so pronounced as to make reception intolerable. Thus, the selectivity of a tuner has to be intelligently designed so as to make possible reception of as wide an audio range as is compatible with



Brenning L300 FM Tuner



Stromberg Carlson SR401 AM-FM Tuner

a reasonable degree of exclusion or rejection of interference from other stations. Another deterrent to wide audio range or tonal fidelity in AM reception is the one of distortion caused by the detector stage in the receiver. In an AM tuner, distortion tends to increase as the audio-frequency range of the receiver is increased. A tuned-radio-frequency stage is a necessity on superheterodyne AM receivers. Such a stage tends to reduce interfering noises and so-called spurious responses, such as "squeals" or "birdies," often noticed on inexpensive table-model receivers. The tuner should have satisfactory image rejection. (Images occur in superheterodyne receivers, when the same station is received on other portions of the dial as well as at the correct spot.) The "superhet" circuit in tuners and receivers does not favor good fidelity. Nevertheless, the superheterodyne is the type almost universally used—because of its compactness, relative uniformity of gain or sensitivity over a wide range of broadcast frequencies, and greater economy in manufacture.

FM characteristics

The most important factors to be considered in an FM tuner are sensitivity, noise rejection, distortion in sound output, and stability. So much has been heard about the inherent fine fidelity qualities of FM transmission that the purchaser of an FM tuner is likely to assume that he is guaranteed the finest possible fidelity. This does not follow, for distortion of tone qualities can be very serious in a badly designed or badly adjusted tuner or receiver.

A tuned-radio-frequency stage is desirable on FM receivers to achieve high sensitivity and selectivity. The FM tuners reported herein all

had this feature. In an FM tuner, very high sensitivity is not merely desirable but is essential to assure reliable reception. Wide, undistorted dynamic range in an FM tuner is not difficult to obtain and seldom presents a problem. One problem, however, is frequency stability. This is difficult to achieve in reception of high-frequency broadcast transmissions, and is a critical factor because a very slight amount of drift will produce intolerable distortion of tone in the sound output of an FM radio. Some receivers now incorporate temperature-compensated components in the tuning circuits, or an automatic frequency control (a.f.c.) circuit which constantly re-tunes the receiver by a small amount and tends to eliminate the problem of drift. The former is the preferred method, but is very costly and requires extremely expert designing and execution. This type of construction will be found only in FM receivers of professional grade, such as the *REL* (an FM tuner of highly refined design), which sells at \$325.

While the a.f.c. affords a good means of keeping an FM receiver tuned, it has the disadvantage of selecting the more powerful of two stations that happen to be closely spaced on the dial. For this reason, when a.f.c. is present, it is desirable to have a switch available which will cut out the a.f.c. circuit when one desires to receive a weaker station that is close in frequency to a powerful one. A visual tuning indicator is regarded as a necessity on any FM tuner which does not have a.f.c., but such an indicator is hardly required when a.f.c. is present.

Audio requirements in tuners

The audio output of a tuner is at a low level, and therefore the tuner must be used in con-



Pilotuner FM 607 FM Tuner

junction with a separate audio amplifier and speaker. The output should be expected to be of as wide as possible frequency range and as low in distortion as possible. In an AM tuner, this range is limited by the audio band-width transmitted by the station (usually about 5000 cycles) and the widest band that can be handled with low distortion in the detector of the particular tuner. Good response in an AM tuner will run from about 50 to 6000 cycles per second with 5 percent or less harmonic distortion.

In FM, the output will be of much wider response; it may run from 50 to 15,000 cycles or more, and distortion figures of 1.5 percent or less throughout that range are not uncommon. Because of this wide-range low-distortion output, a good FM tuner is far more desirable than any AM tuner for work on high-fidelity reception. (Most of the better quality broadcasting of good music today is done by FM stations.) However, the AM band does offer more diversified entertainment. Most of the large network shows as well as important news commentators and sporting events are on AM. Many AM stations broadcast on FM simultaneously, but unfortunately the program material in most of these cases is of such a frequency range that AM can handle it about as well as FM. This frequency range is not wide enough to utilize to the fullest extent the potentialities of FM broadcasting. Where there is no gain in fidelity, FM may be nevertheless preferred for its lower noise level and freedom from interference (static), especially during stormy summer weather.

Unfortunately, FM broadcasting seems to be on the decline in many areas, with a number of stations in financial difficulty. It would be wise to check on the possibility of FM service dying out in one's own area, which would leave the consumer with a tuner but no programs.

The tuners tested had satisfactorily low electrical leakage (shock hazard).

A. Recommended

Browning, Model L300 (Browning Labs., Inc., Winchester, Mass.) \$87.50.

A "basic" FM tuner chassis (see text) for custom installation. 5-1/4 in. high x 9-1/2 in. wide x 7-3/4 in. deep. 8 tubes, plus rectifier. 115 volts a.c., 50 watts. Compact, easily mounted. Two controls on front: on-off-volume, and tuning. Two outputs on back: one audio output to be connected to an amplifier, the other for connecting to a recorder. Also a 115-volt a-c accessory outlet (power to amplifier, record changer, etc.).

FM: T.r.f. (tuned radio frequency) stage, Armstrong

FM circuit (desirable). Sensitivity, 7 microvolts for 30 db. of quieting (very good). Frequency response, 45 to 15,000 c.p.s., good. Low distortion. Has a.f.c., which cannot be cut out. No tuning indicator. Stability of circuits (lack of tendency to drift after warmup) was good.

Audio: The tuner is capable of wide frequency response at its audio output. The output is the cathode follower type, which has the advantage that an extra long connecting cable to the amplifier may be used with little loss of high frequency. **2**

Stromberg Carlson SR401 (Stromberg Carlson Co., Rochester, N.Y.) \$144.95, including metal screen cabinet.

A basic AM-FM tuner for custom installation. 6-1/2 in. high x 11-1/4 in. wide x 11 in. deep. 12 tubes, including rectifier and tuning indicator. 105-125 volts a.c., 55 watts. Four controls on front: on-off-volume, band—AM, FM, a.f.c.—on, off, tuning. On back: audio output and 115-volt accessory outlet.

FM: T.r.f. stage. Sensitivity, 5 microvolts for 30 db. quieting (very good). Frequency response substantially flat, 45 to 15,000 c.p.s. Low distortion. A.f.c. can be cut out to permit tuning in of weak stations. Has "magic eye" tuning indicator. Stability, excellent.

AM: T.r.f. stage. Sensitivity for 1-volt audio output, 5 microvolts at 550 kc. and at 1600 kc. (good). Good AVC (automatic volume control) action. Distortion, 5% or less from 100 c.p.s. to 5000 c.p.s. Good image rejection. Selectivity, satisfactory.

Audio: Wide response on both AM and FM, with low distortion on FM and satisfactorily low distortion on AM. Cathode follower output stage (desirable). **3**

B. Intermediate

Pilotuner FM 607 (Pilot Radio Corp., Long Island City, N.Y.) \$69.50, including cabinet.

A basic FM tuner chassis for custom installation. 6-5/8 in. high x 10-5/8 in. wide x 7-1/2 in. deep. 7 tubes, plus rectifier. 105-120 volts a.c., 50 watts. Controls on front: off-on-volume, FM, FM-a.f.c., phono, tuning. On back: phono input, audio output, and a 115-volt accessory outlet.

FM: T.r.f. stage. Sensitivity, 15 microvolts for 30 db. quieting. Frequency response, 75 to 15,000 c.p.s. (Low-frequency response not as claimed in advertising.) Low distortion. A.f.c. can be cut out for tuning in of a weak station close to a strong one. No tuning indicator (see text). Stability, good. Sensitivity, not as good as on other tuners tested.

Audio: Cathode follower output stage (desirable). Frequency response not nearly as good at low end as Stromberg Carlson SR401 or Browning L300. †Tuner had greater radiation (potential interference with other receivers) than desirable. **1**

Service for "Unit System" Radio-Phonograph Assemblies

IT IS often difficult to obtain satisfactory repair service for radios, radio-phonographs, and television sets in wide distribution even when these are of relatively simple construction. While there has been some exaggeration of the prevalence of downright dishonesty among radio and television servicemen, highly competent repair technicians who are above cutting corners here and there, and will not overcharge for minor jobs are not as numerous as might be desired. The problem of satisfactory service is even more difficult for owners of radio and phonograph equipment assembled according to the "Unit System" described in CR's *Annual Bulletin*, in which components of unusual design are often used, and parts of a quality far above that employed in the average commercial mass-production radio receiver or phonograph.

Insurance against having one's "Unit System" assembly inoperative for several weeks, or against having to put up with frequent periods of unsatisfactory performance, while awaiting service, begins with the selection of the components themselves.

Complete freedom from the need for repairs is not to be expected with any piece of complex electronic equipment. There are certain initial adjustments required as a rule to give best possible performance on a new installation; many of these are simple enough to be made by the owner, if he will carefully follow the instructions furnished by the manufacturer of the components.

As with most complex appliances and devices, sound-reproducing equipment will need occasional preventive maintenance; those who make a good deal of use of their equipment will want to check tubes, for example, once a year. (A common fault is the development of distortion after a period of use, which may arise because one tube of a pair, usually the two output or "power" tubes, has deteriorated.) The electrolytic condensers in most radios and amplifiers deteriorate with age and time, and some are likely to need replacement after a few years, especially if the equipment has not been conservatively designed, to prevent overloading of critical parts.

The superior performance of high-fidelity equipment often means that deficiencies that would be relatively unobjectionable in commer-

cial record players and similar equipment would not be tolerated. This again may mean that the cost of the servicing of high-fidelity units may at times be fairly high. Sometimes a buyer of this sort of home radio and phonograph equipment chooses an amplifier or speaker without consideration of the relationship which one part of the system has to the other parts. It will be wise for anyone interested in this field to refer to the material in CR's *Annual Bulletin* on the subject of the "Unit System of Assembly" and related topics. (Available at the public library, or tear sheets of the "High Fidelity and Records" section at 75 cents, from Consumers' Research.) One who already owns such a system will find it worth while to read this discussion in order to learn the functions and relationships of the various components, and so that he may avoid buying some new element to put into the system that is not well adapted to use with the other parts.

When necessary to have service work done, it is often possible to disconnect one unit of the system, such as the amplifier or the phonograph pickup, and take or mail it to the service agency, without any need to disturb the other elements of the system, or to have the inconvenience or extra expense of having the serviceman coming to the house.

In large metropolitan centers, there are special agencies which advertise in the major newspapers and in various magazines that discuss high-fidelity topics that will service high-fidelity equipment; in smaller cities, the problem is often a difficult one, for the number of high-quality radios and players is very small compared with the number of commercial radio and television receivers and hence not great enough to warrant the extra study required by radio servicemen wishing to service such equipment effectively. Test equipment, too, of a type and grade not often found in the repairman's shop is also needed at times. Quite naturally, unless the serviceman does high-fidelity servicing regularly, it is not to his advantage, economically, to purchase the additional needed equipment.

Sometimes a person who lives in a university town can get a lead to a qualified serviceman by getting in touch with an instructor or assistant in the electrical engineering department who

may often be able to refer him to a well-qualified student engineer with enthusiasm for this subject. In many engineering schools, there are usually members of both the faculty and of the student body that are high-fidelity "bugs" and go in for building their own high-quality recording systems. Radio stations, too, have staff personnel often licensed by government agencies in some electronic specialty and familiar through day-to-day use with high-quality professional audio equipment. Some of these people might be willing to service home equipment in their off hours, especially if the item is one of high-quality and potentially first-rate performance.

It is to be expected that the ability of many radio and television servicemen will improve as

the need for servicing high-fidelity components increases. Most magazines catering to the serviceman have increased their coverage of the subject and several now include articles, directed to the serviceman, on the servicing of quality components.

The purchaser of any high-fidelity equipment should carefully save all the papers and instructions furnished with amplifier, speaker, etc., and make these available to the repairman; they may save a good deal of his effort and time, and avoid the cost of tedious and time-consuming tracing of circuits. It is wise, too, to get these papers all back from the serviceman after the job is done, since they may be needed at some later time.

Discount Buying

THE St. Louis Better Business Bureau has published an analysis of discount house prices which indicates that in many cases the consumer is misled into believing that he is buying something at a sharply-cut price, merely because the seller has made a claim to be a cut-price operator. The Bureau shopped 12 sources for a wide variety of items (kitchen mixers, steam irons, toasters, electric irons, roasters, vacuum cleaners, shavers, wrist watches). Two "wholesale" catalog concerns specializing in supposedly high discounts supplied goods at prices which on the average were actually equal to or only a small amount less than those offered by three retail stores. One so-called "wholesale" catalog concern actually gave the smallest average discount of the group, namely, 22 percent.

The best discount on a selected sample group of items was given by a retail jeweler selling at "wholesale." Two department stores offering cut prices differed considerably; one gave an average discount of 32 percent and the other 25 percent.

One concern claiming to sell at 10 percent above its cost charged more for a *Sunbeam* toaster than either of the department stores or any of the 11 other firms sampled.

One point stands out clearly in the analysis, and that is that you can't *assume* that any given store is selling cheaply something that you want, merely because it sells some other item at a

price which seems unusually low, for in a number of cases, a cut-price store may have sold a *Westinghouse* steam-and-dry iron (for example) at only 18½ percent off whereas another retail store featuring discounts to industrial employees gave 40 percent off on the same appliance. Yet the cut-price store that gave only a moderate cut on the *Westinghouse* iron offered very good discounts on a few other items. In another case, a "wholesale" appliance dealer offered a broiler and roaster *at the regular retail price*, whereas a department store offered the same item at 27 percent off. Some of the largest discounts were found at a department store, and the prices at a second department store did not differ greatly from the first.

In buying from any discount house, there are a number of things that need to be checked: Is the item this year's model? (Last year's may be entirely desirable, but the fact that it is last year's should be considered in judging the saving implied in the cut price.) Is it a demonstration or floor model, or one that has never been removed from its carton? Will you get a full guarantee?

If you decide to buy, do not close the deal until you are assured of a receipt which clearly describes the appliance, showing exact model and serial number of the appliance which you are to receive. When it is delivered, check it at once, to see that you got what was promised.

Gas-Fired Automatic Water Heaters—II

ALL heaters listed below have galvanized steel tanks and internal flues, unless otherwise mentioned. A 355-pound tank test pressure is equivalent to 150 pounds of working pressure; 300-pound test means 127 pounds of working pressure. Prices shown are suggested or estimated retail prices, not including installation, and usually not including excise taxes. Installation will average about \$30 to \$35, nationwide. The insulation almost universally used is *Fiberglas*. Regardless of the number of years shown, full guarantees are usually limited to one year, with the so-called "warranty plan" applying to the tank only. Where bracketed numbers follow the length of the warranty, they refer first to the term of the full tank guarantee, followed by a pro-rata period in which an allowance is made on a new tank with a proportional deduction for the years of tank use. Thus, 5/5 means a guarantee that provides for a new tank without charge for five years (but does not cover the cost of removal of the old tank, installation of the new tank, or cost of drayage from freight station to place of installation), and a decrease-



Tabletop model gas water heater.

Part I of this article appeared in the August 1955 issue and consisted of a discussion of storage tanks and their materials, location of flues, safety valves, controls, recovery rates, and size of heaters. Anyone planning to buy an automatic gas heater should read Part I carefully, along with the present article.

ing allowance on a new tank for each of the following five years. Even so, there are frequently other conditions that limit warranties, such as their being voided entirely if water is carried above a specified temperature (usually 160°F), or if an anode is not used (and kept in effective working condition); or if dielectric unions are not used where the tank and piping are made of dissimilar metals, etc.

The term "safe controls" in the listings refers to the types of control which shut off the flow of gas to both the pilot light and the main burner, in case the pilot light becomes extinguished. Other water heaters have the type of gas cut-off which shuts off the flow to the main burner only, which can be extremely hazardous with bottled gas, and is undesirable and involves elements of danger for use with gas of any type. The foregoing is, of course, not to imply that all so-called "safe" controls will work effectively and surely under all circumstances, and there are no automatic mechanical, electrical, or electronic devices for which 100 percent sureness of operation can be guaranteed when new or after use for a period of years.

A. Recommended

Bastian-Morley (Bastian-Morley Co., Inc., La Porte, Ind.) Also sold as *Crane*, by Crane Co., S. Michigan Ave., Chicago. *Superior* and *Keystone Series*. 2-in. insulation; hot-dip galvanized; anode supplied as standard equipment on *Superior* model, at extra charge on others. The controls are of the "safe" type (see preceding text). Air for combustion on *Superior* model is introduced at top, with bottom sealed; a decrease in heat loss is claimed. 10-yr. warranty. 30-gal. models: *Superior*, \$135; *Keystone*, \$115. 20-, 40-, and 45-gal. sizes also available.

Bradford (Pennsylvania Range Boiler Co., 24 and Ellsworth St., Philadelphia 46) *Deluxe Series*. Porcelain-enamel lined; heavy tank; 2-in. insulation; anode included in the price. The "safe" kind of gas cut-off controls (see text); 10-yr. warranty (5/5—see text). 20 gal., \$120; 30 gal., \$135; 40 gal., \$160.

Bryant (Bryant Heater Div., Affiliated Gas Equipment, Inc., 17825 St. Clair, Cleveland 10) *Crystalglas* (porcelain-enamel lined), and *Series 3-115* and *3-115R* (hot-dip galvanized). Anode included. "Safe controls"; 10-yr. warranties. *Crystalglas*: 20 gal., \$116; 30 gal., \$132; 40 gal., \$158; 50 gal., \$178. *Series 3-115*: 20 gal., \$106; 30 gal., \$124; 40 gal., \$152; 50 gal., \$180. *Series 3-115R*: 30 gal., \$129.

Continental (Continental Water Heater Co., 1801 Pasadena Ave., Los Angeles; also National Steel Construction Co., Logansport, Ind.) *Glaesteel* (porcelain-enamel lined), and tabletop models. 40-gal. tabletop model is the largest available in this type. "Safe controls"; 10-yr. warranty; anode included with tabletop, none with *Glaesteel*. Tabletop has water-jacketed furnace and choice of enameled or wooden carving block top. Tabletop: 30 gal., \$228; 40 gal., \$277. *Glaesteel*: 20 gal., \$120; 30 gal., \$136; 40 gal., \$164.

Crane (see Bastian-Morley).

Heatmaster (Combustion Engineering Co., 911 W. Main St., Chattanooga 1, Tenn.) *Series H* and tabletop. Heavy, high-test, hot-dip galvanized tanks. 1½- to 2-in. insulation; anodes available; "safe controls"; 10-yr. warranty. Tabletop model encased in all-porcelain-enamel cabinet with recessed black base. *Series H*: 20 gal., \$114; 30 gal., \$131; 45 gal., \$173; 60 gal., \$227. Tabletop: 20 gal., \$161; 30 gal., \$182.

Hoffman (Clayton & Lambert Mfg. Co., 1701 Dixie Highway, Louisville, Ky.) "Q" *Series*. Heavy hot-dip galvanized tank; 1½-in. insulation; "safe controls"; anode included; 10-yr. warranty. 20 gal., \$101; 30 gal., \$120; 35 gal., \$139; 45 gal., \$154; 75 gal., \$234.

Homart (Sears, Roebuck & Co., Chicago 7) *Four Star Series*. Porcelain lined. Panel-type flue; tested at 300 lb.; 3-in. insulation; no anode (undesirable); "safe controls"; 10-yr. warranty (5/5). 20 gal., \$110; 45 gal., \$135; 65 gal., \$170.

Hotstream (Hotstream Heater Co., 2363 E. 69 St., Cleveland 4) *Cleveland "A"*; *American "D"*; *Dixie "R"*; *Cleveland Glass Lined*; and tabletop. *Cleveland "A"* and porcelain-enamel lined models have external flues; all others are hot-dip galvanized with internal flues. *Dixie "R"*, very heavy construction. Common features: 1½- to 2-in. insulation; anode optional at extra charge; "safe controls"; 10-yr. warranties (2/8 and 5/5). *Cleveland "A"*: 30 gal., \$128; 40 gal., \$148; 60 gal., \$210. *American "D"*: 20 gal., \$118; 30 gal., \$131; 40 gal., \$143; 50

gal., \$170. *Dixie "R"*: 30 gal., \$164; 40 gal., \$197; 50 gal., \$210. *Cleveland Glass Lined*: 30 gal., \$138; 40 gal., \$157; 50 gal., \$223. Tabletop: 25 gal., \$170; 30 gal., \$180. *Everdur* (a corrosion-resistant copper silicon alloy) and copper tanks available for *Cleveland "A"* series at extra cost.

Jackson (W. L. Jackson Mfg. Co., 1216 E. 40, Chattanooga, Tenn.) Heavy, hot-dipped tank; 2-in. insulation; anode optional at extra charge; "safe controls"; 10-yr. warranty (5/5). 20 gal., \$87; 30 gal., \$100; 40 gal., \$120.

Mission (Mission Appliance Corp., 12611 Crenshaw Blvd., Hawthorne, Calif.) *Double Glass Series* (porcelain lined). External flue; 2-in. insulation; anode included; "safe controls"; 10-yr. warranty (5/5). 30 gal., \$121; 40 gal., \$152.

National (National Steel Construction Co., Logansport, Ind.) See *Continental*.

Penfield (John Wood Co., 100 Washington St., Conshohocken, Pa.) *Deluxe Series* (both hot-dip galvanized and porcelain-enamel-lined), and tabletop. Latter model has choice of porcelain or stainless-steel top; 30 gal. only. Heavy, high-test tanks (tested at 355 lb.); 2-in. insulation; anode included; "safe controls"; 10-yr. guarantee. Also "Master A" *Series*, substantially the same as *Deluxe*, but with 1-in. insulation instead of 2-in. and thus rated A-. *Deluxe* galvanized: 20 gal., \$119; 30 gal., \$135; 40 gal., \$153. *Deluxe*, porcelain-lined: 20 gal., \$131; 30 gal., \$150; 40 gal., \$170. *Master "A"*, galvanized: 20 gal., \$105; 30 gal., \$120; 40 gal., \$130; 45 gal., \$152. *Master "A"*, porcelain-enameled: 20 gal., \$118; 30 gal., \$148; 40 gal., \$168; 45 gal., \$177.

Ruud (Ruud Mfg. Co., Pittsburgh 1) *Hi-Speed* and *Laundrymaster* (hot-dip galvanized); *Monel* and *Monel Laundrymaster*. Internal flues in galvanized models, external in others. Very heavy construction. Anode, \$6 extra for galvanized models, not needed in others; pressure-temperature relief valve, \$12.60 extra; "safe controls"; 10-yr. warranty on all models. *Hi-Speed*: 20 gal., \$100; 30 gal., \$120; 40 gal., \$140. *Laundrymaster*: 30 gal., \$135; 45 gal., \$170; 65 gal., \$225. *Standard Monel*: 20 gal., \$160; 30 gal., \$205. *Laundrymaster Monel*: 30 gal., \$220; 40 gal., \$290; 60 gal., \$400.

Saf-T-Hot (M. M. Hedges Mfg. Co., E. Main and Madison St., Chattanooga, Tenn.) *SGX-M Series*. Hot-dip galvanized; heavy tank; "safe controls"; anode included; 10-yr. warranty (5/5). 20 gal., \$113; 30 gal., \$131; 45 gal., \$171; 66 gal., \$215.

Sands (Sands Mfg. Co., 5407 Sweeney Ave., Cleveland 27) *NS Series*. Heavy tank; 300-lb. test; anode included; "safe controls"; 10-yr. warranty (5/5). 20 gal., \$123; 30 gal., \$140; 40 gal., \$159; 50 gal., \$218.

Trageser (Trageser Copper Works, Inc., 5000 Grand Ave., Maspeth, L.I., N.Y.) Copper-lined tank; heavy construction; high test (355 lb.). "Safe controls"; 10-yr. warranty. 20 gal., \$210; 30 gal., \$235; 45 gal., \$285; 60 gal., \$515.

Whitehead (D. W. Whitehead Mfg. Corp., 1218 Walnut Ave., Trenton 9, N.J.) *Deluxe* (hot-dip galvanized) and *Steelglas* (porcelain-lined) models. High-test tanks (355 lb.); heavy construction; anode optional at extra cost; "safe controls"; 10-yr. warranty. 20- to 65-gal. models, \$100 to \$160

B. Intermediate

Bastian-Morley (Bastian-Morley Co., Inc.; also Crane Co.) *Champion Series*. Lighter construction and insulation than *B-M Superior* and *Keystone Series*. Control not of the "safe" type, as it shuts off main burner only (see text); anode optional at extra cost; 5-yr. warranty. 30-gal. model, \$96; 20- and 40-gal. also available.

Bradford (Pennsylvania Range Boiler Co.) *Standard Series*. Porcelain-enamel lined; internal flue. Somewhat lighter than *Deluxe* models; 1½-in. insulation. Control shuts off main burner only—see *Bastian-Morley* and text; anode optional at extra cost but

recommended by manufacturer; 5-yr. warranty (2/3). 20 gal., \$110; 30 gal., \$120; 40 gal., \$145.

Bryant (Bryant Heater Div., Affiliated Gas Equipment, Inc.) *Bulldog*, and *Series 3-114* and *3-114R*. *Bulldog* is lighter in weight than *Bryant A-Recommended* models; anode optional at extra cost; "safe controls"; 5-yr. warranty (1/4). *Series 3-114* and *3-114R* are substantially the same weight and construction as *A* models, but anode is optional at an extra charge; 5-yr. warranty without anode and 10-yr. with. With anode and 10-yr. warranty. *Series 3-114* and *3-114R* are *A. Recommended*. *Bulldog*: 20 gal., \$93; 30 gal., \$104; 40 gal., \$120. *Series 3-114*: 20 gal., \$96; 30 gal., \$114; 40 gal., \$142; 50 gal., \$170. *Series 3-114R*: 30 gal., \$119.

Crane (see *Bastian-Morley*).

Everhot (Everhot Heater Co., 5189 Wesson Ave., Detroit 10) *Deluxe Series*. External flue; tops not insulated; main burner control only (undesirable, see text); anode optional at extra charge (\$6). 10-yr. warranty (5/5), voided unless dielectric unions are used where needed. 20 gal., \$112; 30 gal., \$128; 50 gal., \$176; 75 gal., \$256.

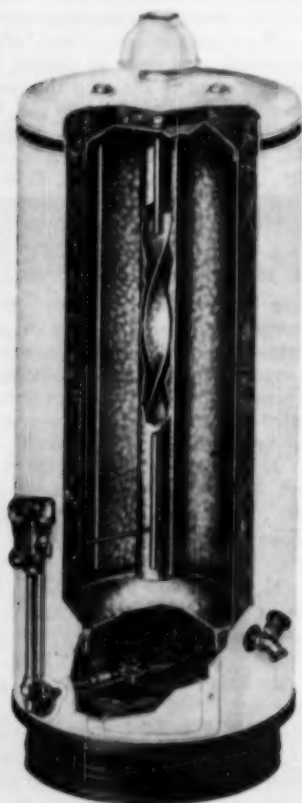
Everhot (Everhot Heater Co.) *Rocket*. External flue; top not insulated. Anode optional at \$6; control shuts off main burner only (undesirable; see *Bastian-Morley* and text); 5-yr. warranty (2/3), void unless appliance is installed with dielectric union. 30 gal., \$101.33.

Heatmaster (Combustion Engineering Co.) *Headliner* and *Standard Series*. Medium-weight tanks. 300-lb. test on *Headliner*; 354 on *Standard*. Anode optional at extra cost; control shuts off main burner only (undesirable; see text). *Headliner*, 5-yr. warranty: 20 gal., \$92; 30 gal., \$103; 40 gal., \$130. *Standard*, 3-yr. warranty: 20 gal., \$77; 30 gal., \$93; 40 gal., \$108.

Hoffman (Clayton & Lambert Co.) *Series PSV*. Tank somewhat lighter than "Q" *Series*; hot-dip galvanized; "safe controls"; anode optional; 5-yr. warranty. (Other models are also available, such as *Series PT, PV, and PST*, in which prices are lowered from \$4 to \$10 by such variants as warranty lowered from 5 to 3 yr. and control for main burner only substituted for the "safe controls" of *PSV Series*. As CR believes the *PSV Series* to be the better buy, units of the series other than *PSV* are not listed.) 20 gal., \$87; 30 gal., \$102; 40 gal., \$118.

Homart (Sears, Roebuck & Co.) *Standard Series*. Porcelain lined; internal flue; 300-lb. test. No anode (undesirable; see text); control for main burner only; thin insulation, 1-in. (1½-in. on top). 10-yr. warranty (5/5). 20 gal., \$83; 30 gal., \$93.

Hotstream (Hotstream Heater Co.) *Ohioan* and *Cabinet Series*. Medium-weight tanks; 1-in. insulation; control for main burner only; anode optional; 5-yr. warranty (2/3). *Ohioan* available in two recovery rates, 71 and 89 min. (30-gal. tank basis). *Ohioan*, standard recovery: 20 gal., \$84; 30 gal., \$101; 40 gal., \$116; 50 gal., \$146. *Ohioan*, "high" recovery: 20 gal., \$86; 30 gal., \$107; 40 gal., \$122. *Cabinet*: 20 gal., \$122; 30 gal., \$144.



Sectional view of round cabinet model.

Koven (L. O. Koven & Bro., 154 Ogden St., Jersey City, N.J.) Available in porcelain-enameled or hot-dip-galvanized models. Cold water introduced at the bottom; would be *A. Recommended* if the design included a dip tube (see text) and 10-yr. warranty (the latter now applies to the porcelain-enameled model and to the galvanized with anode). High-test (355 lb.) heavy-weight tanks; full 2-in. insulation; medium recovery (86 min. for 30-gal. model); anode optional at about \$5; "safe controls." Warranty: 10 yr., porcelain-enameled; 10 yr., galvanized with anode; 5 yr., without anode (B-). Galvanized: 20 gal., \$91; 30 gal., \$105; 40 gal., \$117. Porcelain-enameled: 20 gal., \$119; 30 gal., \$129; 40 gal., \$147.

Lochinvar (Michigan Tank & Heater Co., 14247 Tireman, Dearborn, Mich.) *Knight, UA Series*. Medium-weight tank; 1-in. insulation; "safe controls"; anode optional; 10-yr. warranty with anode (B+); 5-yr. without (B-). 30 gal., \$113; 40 gal., \$137. *Charger Series*. Multiple-flue type. Heavy construction. 1-in. insulation; "safe controls"; no anode. Exterior casing baked enamel inside and out. Very rapid recovery; 47 min. for 30 gal. 5-yr. warranty. 20 gal., \$118; 30 gal., \$147.

Saf-T-Hot (M. M. Hedges Mfg. Co.) *SI-D Series*. Heavy hot-dip tank; "safe controls"; anode optional at \$3. Cold-water connection at the bottom (undesirable). 5-yr. warranty (2/3). 20 gal., \$97; 30 gal., \$113. Also tabletop, *SGT-30M*, heavy tank; "safe controls"; 10-yr. warranty. Porcelain finish on top of cabinet only. 30 gal., \$205.

Sands (Sands Mfg. Co.) *JD* and *BG Series*. Medium weight; 300-lb. tank test. Non-corrosive plastic dip tubes. Anode optional. *JD* has control for main burner only and 3-yr. warranty (1/2); *BG* has "safe controls" and 5-yr. warranty (2/3). *JD Series*: 20 gal., \$93; 30 gal., \$103. *BG Series*: 20 gal., \$101; 30 gal., \$113; 40 gal., \$145; 50 gal., \$192.

Toastmaster (Clark Div., McGraw Electric Co., 5201 W. 65 St., Chicago 38) Slow recovery (95 min. for 30-gal. tank); control for main burner only; anode optional; plastic dip tube. 10-yr. warranty. 20 gal., \$90; 30 gal., \$99; 40 gal., \$118.

Wilshire (Southern Heater Corp., 133 E. Palmer Ave., Compton, Calif.) *Series "A"* and *"AG"*. Medium-weight construction; 2-in. insulation on *"AG"*; "safe controls" on *Series "AG"*; \$5 extra on *Series "A"*. Claim of fast re-heat (71 min. for 30 gal.) not warranted. 5-yr. unconditional guarantee on *Series "A"*; 10-yr. (5/5) on *"AG"*. *Series "A"*: 20 gal., \$79; 30 gal., \$93; 40 gal., \$110; 50 gal., \$141. *Series "AG"*: 20 gal., \$91; 30 gal., \$108; 40 gal., \$128.

C. Not Recommended

Bastian-Morley (Bastian-Morley Co., Inc.; also Crane Co.) *Marvel Series*. Minimum construction; light tank; control for main burner only; anode optional at extra cost; 3-yr. warranty.

Bryant (Bryant Heater Div., Affiliated Gas Equipment, Inc.) *Builder Series*. Light competitive

models; control shuts off main burner only; anode optional at extra cost. 1-yr. warranty.

Continental (Continental Water Heater Co.; also National Steel Construction Co.) *Hotspot Series*. Lightest construction of any heater listed herein. Anode optional at extra cost; control for main burner only. 1-yr. guarantee. *Gladiator* and *Economy Series* also very light. 7-yr. (1/6) and 5-yr. (2/3) warranties, respectively.

Everhot (Everhot Heater Co.) *Sandy Mac* and *Wolverine Series*. Light construction; 300-lb. test. Slow recovery (*Sandy Mac*, 95 min. for 30-gal. model as compared with 54 min. for *Deluxe Series*). Control for main burner only; anode optional at \$6. Warranties: *Sandy Mac*, 3 yr. (1/2); *Wolverine*, 1 yr.; both voided if dielectric unions are not used.

Hotstream (Hotstream Heater Co.) *Texan* and *Longhorn Series*. Competitive models. Light construction; 300-lb. test; hot dipped; 1-in. insulation. Relatively slow recovery (89 min. for 30-gal. model as compared with 61 min. and 71 min. for *A-Recommended* models). Control for main burner only; anode optional at extra cost. *Texan* warranted for 1 yr.; *Longhorn* for 3 yr. (1/2). (Chrome trim and longer warranty of *Longhorn* constitutes principal difference between the two models.)

Lochinvar (Michigan Tank & Heater Co.) *Challenger Series*. Competitive type, so-called; a heater of very light construction. Control for main burner only; no anode; 1-yr. guarantee.

Sands (Sands Mfg. Co.) *JA Series*. Competitive line, so-called. Hot-dip-galvanized of very light construction; anode optional at \$5; control for main burner only. 1-yr. guarantee. 30 gal., \$100.

Wilshire (Southern Heater Corp.) *Series FH, RV, and R*. Competitive type, so-called, of very light construction; 86 min. recovery (30 gal.); 1-in. insulation; control for main burner only. "Safe controls" at \$5 extra. 1-yr., 3-yr. (1/2), and 5-yr. (2/3) warranties, respectively.

Editor's Note: Several manufacturers (among them some very well-known names in the gas water heater field) have been omitted from this report because they either refused to supply information about the prices of their equipment, or made no answer to repeated requests for price data. It seems rather likely that the reason for failure of some companies to furnish such information is that some manufacturers of items sold by the plumbing trade have adopted a policy of not advertising or quoting retail prices, so as to give the plumber the widest latitude in his mark-up above cost. The plumber can take advantage of this policy by adding any mark-up figure he thinks suitable to his customers, or a particular customer—in a word he can adapt his selling price to what consumers in his locality can be persuaded to pay. This is fine for him—in the short run, at least—but very disadvantageous to consumers.

* * *

Some omissions are not due to the reason mentioned at the beginning of this note, and the omission of any brand or model of water heater is not to be taken as indicating any judgment of the product, favorable or unfavorable.

Super Jet Spray Gun

RECENT full-page newspaper and magazine advertising of a "revolutionary new spray gun" seems to have stirred up considerable interest among do-it-yourself consumers, and CR has received many requests for an evaluation of this product. The device is known as the *Super Jet Spray Gun*, part of a kit which sells for \$29.95.

The advertising makes the *Super Jet* appear to be just the tool the amateur needs to turn out a professional sort of job on furniture, rooms, cars, etc., with paint, enamel, varnish, shellac, and lacquer. The device is also recommended for applying insecticides and fertilizers. The gun differs from a regular spray outfit in that it is self-contained and includes in its compact mechanism a 110-volt vibrator-type power unit. Actually, the gun is simply another of the several "motorless" vibrator sprayers and is similar in operation to the *Burgess Electric Vibro Sprayer* reported on in CR BULLETIN, January 1950, which was given a *C-Not-Recommended* rating.

The gun as received by CR was found satisfactory in electrical tests for leakage current (shock hazard). It was then set up for an endurance test of the type described by the manufacturer in his advertisements. It failed in operation after the first 8¼ hours of test. The gun was at once returned to the manufacturer under terms of a 90-day guarantee. He sent a new one in return at no extra charge. The second gun failed after 40 hours of test, and it, too, was returned to the maker. After considerable delay, a third one was received, again at no charge.

This gun was applied to spraying synthetic enamel by a professional spray gun operator, who found that when adjusted for a heavy spray the enamel ran. Adjusting the control slightly produced too thin a coating with a stippled effect, and the operator found that it was not possible to adjust the control to produce a satisfactory spray.

The gun was tested on various surfaces, and the consensus of opinion was that the results were not satisfactory for fine work requiring a professional finish, such as auto re-painting. For rough work, such as painting porch furniture, buildings, etc., the *Super Jet* might serve reasonably well were it not for the question of short working life. CR believes that anyone who expects to do any amount of spray painting would be well advised to purchase one of the standard compressor-type outfits, which are available for a price of about \$50 complete with a spray gun equipped with two interchangeable nozzles.



At the end of the spraying test, the third *Super Jet* was again placed on a short endurance test. After 8¾ hours, the spraying stopped, and upon examining the device, it was found that a high shock hazard had developed. The leakage current ran to about 10 milliamperes, which is many times what would be considered a safe limit for an electrical appliance, and particularly for one that may be used out of doors, by a person standing on damp or wet concrete or the ground. It will be seen that, on the whole, experiences with the *Super Jet* indicated that it was far from a reliable appliance, and it is probable that a good many purchasers of this device would find reason for dissatisfaction with it, and that some would even be subject to an electrical hazard in its use.

C. Not Recommended

Super Jet Spray Gun (Power Products, Inc., 175 E.

87 St., New York 28) \$29.95 for kit, including spray gun, aluminum paint jar, 15 ft. of ¼-in. plastic tubing, 15 ft. of electric extension cord, carrying case, container of spare parts, and a brass screen strainer. The device is sold on 10 days' trial, and the advertising offers full refund of purchase price if the user is not satisfied. A vibrator-type spray gun that operates on 110-115 volts a.c. Aluminum jar holds about 1 qt. of liquid. Operated fairly well while it remained in working condition, but judged not suitable for use of professional workers with paint, lacquer, or enamel (as in automobile painting). In view of the substantial and repeated failures, we believe that few would find this a desirable purchase, unless they would not mind being without the appliance while it was being returned to the manufacturer for servicing or replacement. ¶This appliance bore the seal of Underwriters' Laboratories, but one of three samples showed high leakage current (shock hazard).

T-Shirts

THE T-shirt is a favorite garment with a good many men because it can be worn either as a sport shirt or as an undershirt. Most men find the T-shirt more comfortable than an athletic undershirt which is cut away at the neck and armpit so that it does not absorb perspiration. Absorbent fabric at the neck and armpits is desirable in the summer, and helps provide protection in colder weather.

The problem of size

Many men avow that they cannot get T-shirts in civilian life that match those that they had in the military services. They probably have a point. For one thing, the shirts they were issued in the services may have fitted them better. Of the 23 flat-knit T-shirts included in this study, 21 were too narrow and 13 were too short (some *both* too narrow and too short) to comply with the Military Standard for such shirts. On many of the shirts tested, the neckband was too small to meet minimum requirements. A neckband which is too small is likely to be stretched as the T-shirt is pulled on over the head and will lose its shape and its elasticity more quickly than a neckband of proper size.

Just how to get the right size T-shirt is a little difficult to determine. For one thing, T-shirts differ greatly in size and shape even when marked with the same size. Rib-knit shirts are likely to be somewhat longer and narrower than flat-knit shirts. See Figure 1, for example. Consumers' Research bought the shirts for test in the medium (38-40) range and found that the shirts so marked were of many different sizes and shapes, depending apparently upon the manufacturer's idea of dimensions a shirt should have. The matter was still further complicated by the fact that to some manufacturers, medium is in the 42- to 44-size range.

Contributing to the problem is the fact that T-shirts shrink in laundering. Most shirts in CR's test shrank so that they were at least one size smaller after five launderings. This shrinkage occurred whether they were dried on a line or in an electric clothes dryer. It will usually be advisable, therefore, to buy T-shirts one or perhaps two sizes larger than would seem to be required.

Washability

T-shirts may not only shrink in laundering, but become distorted and out of shape also.

According to one school of thought, shrinkage and distortion are least when the shirts are dried on a line. Drying in a dryer is held to be unsatisfactory. Home economists for dryer manufacturers sometimes suggest that T-shirts and other cotton-knit goods be removed from the dryer while slightly damp and stretched back into shape. The housewife, however, is likely to regard any special handling as a chore, and will find it easier to follow the recommendation that knit fabrics be dried at low to medium temperatures rather than at high temperature settings of the dryer.

This latter procedure was followed in CR's study. Two shirts of each brand were washed in an automatic washer; one shirt of each brand was dried on a line, one shirt of each was dried in an automatic electric clothes dryer set at low heat. There was little difference in the effect of laundering, as a rule, whether the shirt was dried on the line or in a dryer. On the whole, the T-shirts which shrank excessively did so with either method of drying. Furthermore, the shirts that got out of shape tended to do so with either method of drying.

There was, however, somewhat less shrinkage in length in the line-dried shirts than in dryer-dried shirts. The average shrinkage in length of line-dried shirts was 11 percent (with a range from 2 to 33 percent), of dryer-dried shirts, 14 percent (range from 5 to 32 percent). The difference of three percentage points in shrinkage represents about an inch in the length of a 30-inch T-shirt, however, probably not enough to be important to the comfort of the wearer if the shirt was of good size to begin with. CR considered 12 percent the maximum permissible shrinkage, following government



Figure 1—Rib-knit T-shirts, like the one shown on the left, tend to be longer and narrower than flat-knit T-shirts, as shown on the right. Both these shirts were marked the same size (38-40).

specifications. Twenty-two of 35 line-dried shirts and 15 of 35 dryer-dried shirts had shrinkage within this limit.

Fibers and fabrics

All but four of the T-shirts tested were made principally of cotton yarns; *Healthgard 517* and *Spiegel Helanca* shirts were made of nylon; *B.V.D.* and *Spiegel 43-3162* were made of cotton "treated" or blended with nylon. The nylon shirts did not perform any differently with respect to shrinkage from some of the cotton ones. There was a difference in the appearance of the nylon shirts which were dried in the dryer, however. Dryer-dried nylon T-shirts tended to take on a yellowish hue. It is recommended that nylon T-shirts be line dried rather than dryer dried.

The *Helanca* shirt was made of *Helanca* stretchable yarn, which is familiar to most consumers nowadays as the yarn that is used in making the doll-sized hose that stretch to fit the foot. The man who likes a snug-fitting T-shirt would probably like the *Helanca* shirt. At least one member of CR's staff who claims to like snug-fitting shirts, however, found the *Helanca* shirt a little too confining. Another objection to these shirts is that the shirt does not hold its stretched length and it therefore tends to crawl up above the waistline as it is worn.

Several of the shirts were made of special cotton yarns. *Healthgard 475* and *Penney's Towncraft* were made of *Durene* mercerized cotton yarns which have a luster and which are known to wear well. Some of the shirts were made of combed-cotton yarns which are required by the Military Specification and are generally considered superior to carded-cotton yarns.

Almost all of the shirts had neckbands that were reinforced with synthetic yarns, either

nylon or Dacron, or were made of synthetic yarn entirely. The wear to which the neckband is subjected, particularly stretching, makes such reinforcement desirable. The all-synthetic-yarn neckbands, however, had a slightly yellowish color which contrasted with the body of the shirt. This might be of some importance to the man who customarily wears sport shirts open at the neck so that the neckband of the T-shirt shows.

It is of interest to note that it is almost impossible to judge the strength of the fabric of a T-shirt by looking at it. Four of the fabrics were found to be noticeably weaker than the others in bursting strength, but only one of these could be detected by the eye as being weaker; the other three did not look different from the stronger fabrics. However, most of the fabrics had a bursting strength in excess of 80, and some even exceeded 100 pounds per square inch, well in excess of the minimum limits.

Construction

Sagging of the shoulder seams and distortion of the fabric will cause a T-shirt to go out of shape. Most samples had seams that were reinforced. Some had a cord or a narrow tape inserted in the seam, others had a strip of fabric sewn over the seam. The shoulder seams were not reinforced in the two *Fruit of the Loom* shirts, *Hanes*, and *Spiegel No. 3042*, and these seams, being only single-stitched, would likely prove least secure in service. The serviceability of the neckband is probably most important to the man wearing the shirt. Almost all neckbands look good when the shirt is new, but many get out of shape quickly and twist and bunch in laundering. A neckband that is so constructed that it is seamless or one that has the seam on the inside is judged more desirable than other kinds.



Figure 2—The long and the short of it. A T-shirt before washing and drying, at the left, and after five washings and dryings (on a clothesline), at the right.

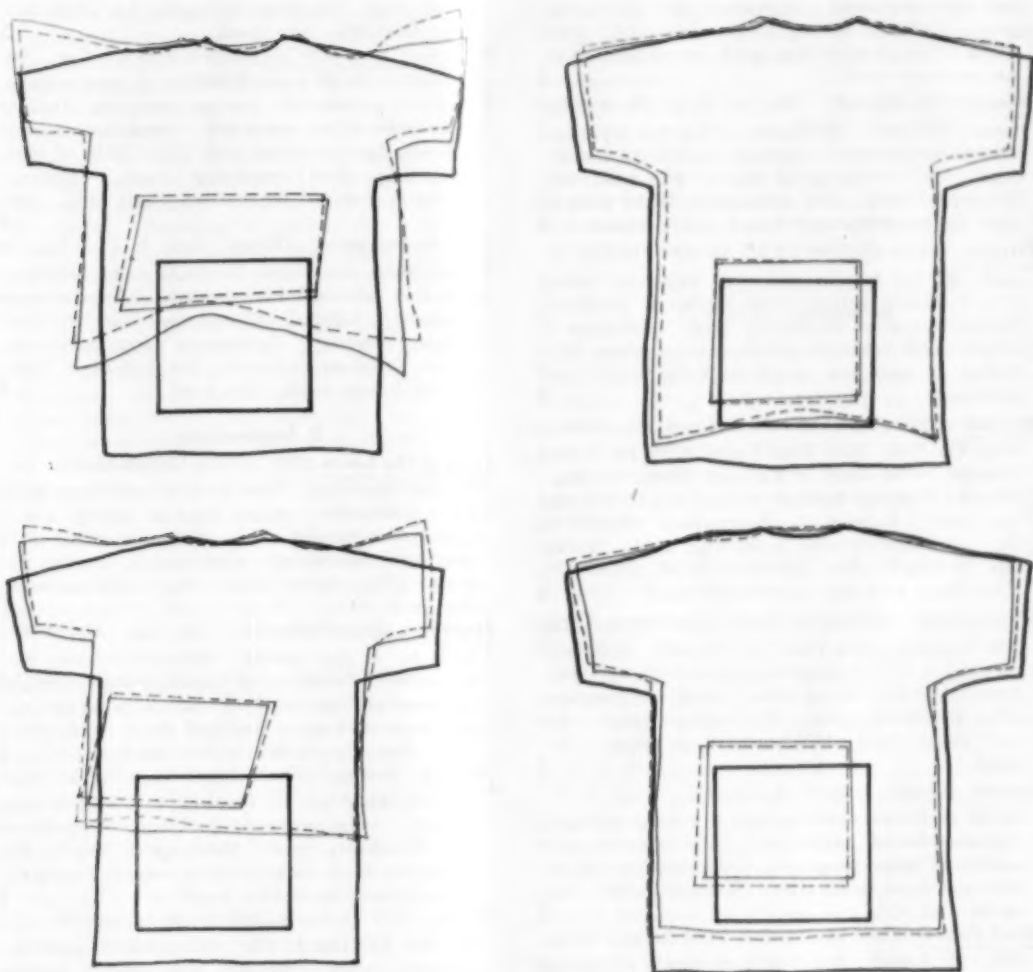


Figure 3—Outline drawings showing the cotton T-shirt as new (heavy line) and shrinkage and distortion following 5 (thin solid line) and 15 (broken line) successive washings and dryings. The square was 10 x 10 inches, originally. It became smaller in one direction and distorted in shape as the shirt shown at the left was washed and dried. The top two shirts were line dried; the shirts below, of the same two brands, were dried in an electric clothes dryer.

CR's tests

Tests by Consumers' Research included an evaluation of the fabric and its properties, including count, defects, bursting strength, and measurements and an examination of the shirts, including construction and compliance with size standards. Percentages of shrinkage were calculated and outlines were recorded to show the degree of distortion or the change of the shape of the shirt with laundering. (See Figure 3.)

A great deal of weight was given to the performance of the shirts in the laundering tests.

On some shirts the neckbands got out of shape quickly, while on others the neckbands still retained their good appearance after the 15 washings and line- or dryer-dryings. Some shirts became badly distorted. On some shirts the sleeves stretched upwards like butterfly wings. Specific comments about the shirts appear in the listings.

A. Recommended

Healthgard, Better (Montgomery Ward's Cat. No. 29-460) 77c each, \$2.20 for 3, plus postage. 1 x 1 rib-knit cotton of average strength, cotton-

and-nylon neckband. Appearance after laundering, good. Shrinkage in length: line dried, 2%; dryer dried, 12%. Original size, good, except about 4 in. too narrow in width. **2**

Penney's Towncraft (Sold by J. C. Penney Co. stores) 98c each. Relatively strong 1 x 1 rib-knit *Durene* cotton fabric. Appearance after 15 launderings, good. Shrinkage in length: line dried, 8%; dryer dried, 10%; both satisfactory. Shirt failed to meet size requirements in length and neckband. **2**

Pilgrim (Sears-Roebuck's Cat. No. 83-5182G) 79c each, \$3 for 4, plus postage. Relatively strong 1 x 1 rib-knit cotton, nylon-reinforced neckband. Appearance after laundering, good. Shrinkage in length: both line dried and dryer dried, about 13%. Failed to meet size requirements in length and neckband. **2**

Spiegel (Spiegel's Cat. No. 43-3167; Allison Mfg. Co., Inc., New York City) \$2.94 for 3, plus postage. (Not listed in Fall and Winter Catalog.) Relatively strong flat-knit cotton, nylon-reinforced neckband. Labeled "Redmanized" shrunk to fit. Appearance after laundering, good. Shrinkage in length: line and dryer dried, about 9%. Compliance with size requirements, good. **2**

Wrightswear (Wright's Health Underwear Corp., 345 Broadway, New York 13) 89c each. Relatively strong 1 x 1 rib-knit cotton, nylon-reinforced neckband. Labeled "shrink resist treated." Appearance after laundering, good. Shrinkage in length: line and dryer dried, 14%, judged excessive. Size, good. **2**

Arrow (Cluett, Peabody & Co., Inc., Troy, N. Y.) \$1.25 each. Flat-knit cotton of average strength, nylon-reinforced neckband. Some distortion of neckband after laundering. Shrinkage in length: line and dryer dried, about 7% (both good). Size, good. **3**

Club Fellow (Sold by Marshall Field & Co., Chicago) 80c each. 1 x 1 rib-knit cotton of average strength. Dacron-reinforced neck and sleeve bands. Appearance after laundering, good. Shrinkage in length: line dried, 14% (excessive); dryer dried, 11%. Increase in width, dryer dried, 8%. Size, good, except over 3 in. short in length. **3**

Healthgard, Best (Montgomery Ward's Cat. No. 29-475) \$1.19 each, \$3.47 for 3, plus postage. Flat-knit *Durene* cotton of average strength. Appearance after laundering, good. Shrinkage in length: line dried, 7%; dryer dried, 9%. Size, very good. **3**

Healthgard, DeLuxe (Montgomery Ward's Cat. No. 29-496) \$1.29 each, \$3.77 for 3, plus postage. 1 x 1 rib-knit cotton (one of the strongest and the heaviest fabrics tested), nylon-reinforced neckband. Appearance after laundering, good. Shrinkage in length: line dried, 7%; dryer dried, 12%. Size, good, except more than 3 in. too wide. **3**

Munsingwear (Munsingwear, Inc., Minneapolis) \$1.50 each. Relatively strong flat-knit cotton, nylon-reinforced neckband. Appearance after laun-

dering, good. Shrinkage in length: line dried, 6%; dryer dried, 8%. Size, good. **3**

Pilgrim, "Flex Fit" (Sears-Roebuck's Cat. No. 83-5072) \$1.49 each, \$2.90 for 2, plus postage. Flat-knit cotton of average strength, *Helanca* stretchable nylon neckband. Neckband was a yellowish hue compared with white body of shirt. Appearance after laundering, good. Shrinkage in length: line and dryer dried, about 11%. Size, good. **3**

Reis Perma-sized (Robert Reis & Co., Empire State Bldg., New York 1) \$1.25 each. Flat-knit cotton of relatively low strength, nylon-reinforced neckband. Labeled "Perma-sized-Reis shrink-resistance process." Appearance after laundering, good. Shrinkage in length: line and dryer dried, about 5% (very good). Size, good. **3**

B. Intermediate

Fruit of the Loom 2525 (Union Underwear Co., Inc., Empire State Bldg., New York 1) 69c each, \$2.05 for 3. Relatively strong flat-knit cotton, nylon-reinforced neckband. Some distortion of line-dried shirt after laundering. Shrinkage in length: line dried, 13%; dryer dried, 17%; both excessive. Size, good. **1**

Pilgrim (Sears-Roebuck's Cat. No. 83-5188G) \$1.98 for 4, plus postage. Relatively strong flat-knit cotton. Neckband of line-dried shirt stretched, neckband of dryer-dried shirt shrank in launderings. Shrinkage in length: line and dryer dried, about 12%. Size, slightly smaller than standard. **1**

Allen-A, Dittos (The Allen-A Co., Piqua, Ohio) \$1 each, \$2.85 for 3. Flat-knit cotton of average strength, nylon-reinforced neckband. Appearance after laundering, poor. Shrinkage in length: line and dryer dried, 16%, both excessive. Size, good, except about 3 in. short in length. **2**

B.V.D. (B.V.D. Corp., 265 Madison Ave., N.Y.C.) 85c each, \$2.53 for 3. 1 x 1 rib-knit cotton of average strength, yarns "treated" with nylon. Labeled "Labro-shrunk." Will not shrink out of fit. Neckband and sleeves slightly distorted on line-dried shirt after laundering. Shrinkage in length: line dried, 6%; dryer dried, 14%, excessive. Size, good, except neckband was slightly smaller than requirements. **2**

Hanes (P. H. Hanes Knitting Co., Winston-Salem, N. C.) \$1 each. Flat-knit cotton of average strength, nylon-reinforced neckband. Labeled "treated for shrink resistance." Some distortion of shirt after laundering. Shrinkage in length: line dried, 10%; dryer dried, 12%. Size, good. **2**

Healthgard, Best (Montgomery Ward's Cat. No. 29-464) 95c each, \$3.69 for 4, plus postage. Relatively strong flat-knit cotton, nylon-reinforced neckband. Neckband and body of shirt distorted after laundering. Shrinkage in length: line dried, 11%; dryer dried, 18%, excessive. Increase in width, dryer dried, 7%. Size, good. **2**

Healthgard, Better (Montgomery Ward's Cat. No. 29-473) 77c each, \$2.20 for 3, plus postage.

Flat-knit cotton fabric of average strength, with cotton-and-nylon neckband. Appearance after 15 launderings, good. Shrinkage in length: line dried, 13% (excessive); dryer dried, 10%. Shirt failed to meet size requirements in 4 of the 6 measurements. **2**

Healthgard, Better (Montgomery Ward's Cat. No. 29-415) 77c each, \$2.20 for 3, plus postage. Mesh rib-knit cotton of relatively low strength, cotton-and-nylon neckband. Body of shirt distorted after laundering. Shrinkage in length: line and dryer dried, 14%, both excessive. Size, much too small, equivalent to a shirt at least two sizes smaller. **2**

Long Wear (New Process Co., Warren, Pa.) \$4.35 for 5. 1 x 1 rib-knit cotton of average strength, nylon-reinforced neckband. Labeled "shrink resist." Neckband was considerably stretched after laundering. Shrinkage in length: line dried, 13%; dryer dried, 16%; both excessive. Increase in width, dryer dried, 7%. Size, good, except about 3 in. short in length. **2**

Pilgrim (Sears-Roebuck's Cat. No. 83-5186G) 79c each, \$3 for 4, plus postage. Relatively strong flat-knit cotton, nylon-reinforced neckband. Labeled "fabric treated to minimize shrinkage." Sleeves and neckband out of shape after laundering. Shrinkage in length: line dried, 9%; dryer dried, 21%, excessive. Size, good, except in length which was 4 in. shorter than requirements. **2**

Pilgrim, Royal Egyptian (Sears-Roebuck's Cat. No. 83-5054G) 98c each, \$2.85 for 3, plus postage. Relatively strong flat-knit cotton, nylon-reinforced neckband. Labeled "controlled for minimum shrinkage." Appearance after laundering, good. Shrinkage in length: line dried, 17%; dryer dried, 16%; both excessive. Size, good. **2**

Spiegel (Spiegel's Cat. No. 43-3162) \$2.85 for 3, plus postage. Relatively strong 1 x 1 rib-knit cotton and nylon blend, nylon-reinforced neckband. Appearance after laundering, good. Shrinkage in length: line dried, 11%; dryer dried, 14%, excessive. Shirt would have received an *A-Recommended* rating except for failure to meet basic size requirements. Size, small, equivalent to shirt about one size smaller. **2**

Duocraft "De Luxe" (Duofold, Inc., Mohawk, N. Y.) \$1.25 each. Flat-knit cotton of average strength, nylon-reinforced neckband. Shirt distorted after laundering. Shrinkage in length: line dried, 10%; dryer dried, 16%, excessive. Size, very good. **3**

Healthgard, Fine Quality (Montgomery Ward's Cat. No. 29-517) \$2.75 each. 1 x 1 rib-knit spun nylon of average strength. Appearance after laundering, good. Dryer-dried shirt became yellowish in color. Shrinkage in length: line dried, 8%; dryer dried, 10%; both good. Shirt would have received an *A-Recommended* rating except for failure to meet basic size requirements. Size, much too small, equivalent to a shirt at least two sizes smaller. Not listed in Fall and Winter Catalog. **3**

Jockey (Cooper's, Inc., Kenosha, Wis.) \$1.25. Flat-knit cotton of average strength, nylon-reinforced neckband. Neckband, slightly distorted

after laundering. Shrinkage in length: line dried, 7%; dryer dried, 13%. Shirt failed to meet size requirements by considerable margin in 4 of 6 measurements. **3**

Spiegel (Spiegel's Cat. No. 43-3171) \$2.49 each, plus postage. Flat-knit *Helanca* stretchable nylon. Dryer-dried shirt became noticeably yellowish in tint (elasticity was not noticeably affected). Shrinkage in length: line dried, 10%; dryer dried, 19%, excessive. After laundering, shirt looked like a "Junior" size. Marked size, 34-46. **3**

C. Not Recommended

Fruit of the Loom 4545 (Union Underwear Co., Inc.) 69c each, \$2.05 for 3. Relatively strong 1 x 1 rib-knit cotton, nylon-reinforced neckband. Appearance after laundering, good. Shrinkage in length: line dried, 12%; dryer dried, 14%, excessive. Each of the three shirts tested had flaws in knitted fabric. Size, good, except over 3 in. short in length. **1**

* * *

Shirts of the following six brands were considerably distorted after laundering.

Healthgard, Good (Montgomery Ward's Cat. No. 29-478) \$1 for 2, \$2.75 for 6, plus postage. Flat-knit cotton of average strength, nylon-reinforced neckband. Shrinkage in length: line dried, 22%; dryer dried, 24%; both very high. Shirt failed to meet size requirements in 3 of 6 measurements. **1**

Spiegel Full-cut (Spiegel's Cat. No. 43-3042) \$1.72 for 4, plus postage. Flat-knit cotton of relatively low strength, nylon-stitched neckband. Shrinkage in length: line dried, 33%; dryer dried, 32%; both excessive (worst of the group tested). Increase in width: line dried, 17%; dryer dried, 9%. Size, much too small, equivalent to a shirt at least two sizes smaller. **1**

Hansley (Hansley Mills, Inc., Paris, Ky.) 79c each. Relatively strong flat-knit combed cotton. Shrinkage in length: line dried, 17%; dryer dried, 19%; both excessive. Size, good, except slightly smaller than requirements for neckband. **2**

Spiegel (Spiegel's Cat. No. 43-3165) \$2.25 for 3, plus postage. Flat-knit cotton of relatively low strength, nylon-reinforced neckband. Labeled "shrink resist." Shrinkage in length: line dried, 8%; dryer dried, 11%. Size, good, except smaller than requirements for sleeve width and neckband. **2**

Stedman (Stedman Mfg. Co., Asheboro, N. C.) \$1 each. Flat-knit cotton of average strength, nylon-reinforced neckband. Labeled "shrink resistant, won't shrink out of fit." Shrinkage in length: line dried, 5%; dryer dried, 13%, excessive. Size, good. **2**

Van Heusen (Phillips-Jones Corp., 417 Fifth Ave., N.Y.C.) \$1 each. Flat-knit cotton of relatively low strength. Shrinkage in length: line dried, 14%; dryer dried, 17%; both excessive. Size, good, except shirt was 4 in. short. **2**

Off the Editor's Chest

(Continued from page 2)

tered X-rays. It is his view that X-rays, particularly in the abdominal region, will have an adverse effect on the reproductive organs. Furthermore, he points out, the more radiation a person is exposed to, the more risk there is of occurrence of mutations with adverse effect on health and vigor of future offspring.

Knowledge in this field is quite inadequate at the present time and the subject deserves greater attention from medical foundations that spend great sums every year to discover the causes of various human ailments. It is the view of one eminent scientist that genetic damage from medical uses of X-rays could be avoided if proper precautions were taken in their application.

Instead of forecasting what will be the probable effect of H-bombs in time of war, it would seem much more practical to take a careful look at current recommendations in the public health field in the use of ionizing radiations. Just how much of a cumulative dose does the person get who customarily has an annual chest X-ray, plus an annual or semiannual dental X-ray, and perhaps other X-ray treatments during a year, and what is a safe tolerance in a given case? This question requires considerably more intensive unspectacular, expensive, and tedious research, but many would consider it to be of far more practical importance to the population of the United States than the speculative viewings with alarm of the suppositional dangers that would be incurred by the population in this and other countries in the event of an A-bomb or H-bomb attack.

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Indicates that listings of names or brands are included.

Ratings of Motion Pictures

THIS section aims to give critical consumers a digest of opinion from a wide range of motion picture reviews, including the motion picture trade press, leading newspapers and magazines—some 19 different periodicals in all. The motion picture ratings which follow thus do not represent the judgment of a single person, but are based on an analysis of critics' reviews.

The sources of the reviews are:

Box Office, Cue, Daily News (N. Y.), The Exhibitor, Films in Review, Harrison's Report, Joint Estimates of Current Motion Pictures, Motion Picture Herald, National Legion of Decency, Newsweek, New York Herald Tribune, New York Times, The New Yorker, Parents' Magazine, Release of the D. A. R., Preview Committee, Reviews and Ratings by the Protestant Motion Picture Council, The Tablet, Time, Variety (weekly).

The figures preceding the title of the picture indicate the number of critics whose judgments of its entertainment values warrant a rating of A (recommended), B (intermediate), or C (not recommended).

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure	mel—melodrama
biog—biography	mus—musical
c—in color (Anasco, Eastman, Technicolor, Trucolor, Warner Color, etc.)	mys—mystery
car—cartoon	nov—dramatization of a novel
com—comedy	rom—romance
cri—crime and capture of criminals	sci—science fiction
doc—documentary	soc—social problem drama
dr—drama	trav—travelogue
fan—fantasy	war—dealing with the lives of people in wartime
hist—founded on historical incident	wes—western

A	B	C	
—	5	3	Abbott and Costello Meet the Keystone Kops.....com AY
—	5	4	Abbott and Costello Meet the Mummy.....com AY
—	6	6	Adventures of Sadie, The (British).....com A
—	—	3	African Manhunt.....mel A
—	5	9	Ain't Misbehavin'.....mus-com-c A
—	8	3	An Annapolis Story.....war-dr-c AY
—	3	7	Angela.....mel A
1	1	1	Assignment Children.....doc-c AY
1	10	6	Battle Cry.....war-dr-c A
—	7	3	Battle Taxi.....war-mel AY
—	1	7	Bed, The (French).....com A
—	2	12	Redevilled.....mel-c A
—	1	2	Big Bluff, The.....mel A
—	5	8	Big Combo, The.....cri-mel A
—	3	9	Big House, U.S.A.....cri-mel A
—	1	4	Big Tip Off, The.....cri-mel A
3	9	4	Blackboard Jungle, The.....soc-dr A
—	4	2	Bring Your Smile Along.....mus-com-c AY
—	5	7	Bullet for Joey, A.....cri-mel A
—	4	5	Canyon Crossroads.....mel AY
—	9	3	Captain Lightfoot.....adv-c A
—	—	3	Carolina Cannonball.....com A
—	1	2	Cavalcade of Song (Italian).....mus-dr A
—	4	9	Cell 2455, Death Row.....cri-mel A
—	5	7	Chance Meeting (British).....dr A
—	8	5	Chicago Syndicate.....cri-mel A
1	7	5	Chief Crazy Horse.....mel-c AY

A	B	C	
1	5	3	Cobweb, The.....nov-c A
1	9	4	Conquest of Space.....sci-c A
—	3	1	Court Martial (British).....war-dr A
—	7	4	Crashout.....mel A
—	3	8	Creature with the Atom Brain.....sci-mel A
—	6	3	Cult of the Cobra.....mel A
4	11	1	Daddy Long Legs.....mus-com-c AY
—	3	—	Dam Busters, The (British).....war-mel AY
2	8	4	Davy Crockett.....biog-c AY
—	3	3	Day to Remember, A (British).....com AY
—	—	3	Desperate Women, The.....soc-dr A
—	—	3	Devil Goddess.....adv AY
—	1	4	Dial Red O.....cri-mel A
1	11	5	Doctor in the House (British).....com-c A
—	—	3	Don Juan's Night of Love (Italian).....mel A
7	4	3	East of Eden.....dr-c A
—	4	2	Eight O'Clock Walk (British).....cri-mel A
—	6	10	End of the Affair, The (British).....dr A
—	3	8	Escape to Burma.....mel-c A
—	10	2	Eternal Sea, The.....biog AY
—	11	3	Far Country, The.....mel-c A
—	8	4	Far Horizons, The.....mel-c AY
—	3	2	Female on the Beach.....dr A
—	2	7	Finger Man.....cri-mel A
—	7	12	Five Against the House.....cri-mel A
—	3	2	Five Guns West.....mel-c A
—	6	8	Foxfire.....dr-c A
—	3	3	Francis in the Navy.....com AY
—	2	8	Front Page Story (British).....mel A
—	6	—	Fuss Over Feathers (British).....war-dr AY
—	3	3	Gangbusters.....cri-mel A
3	10	4	Glass Slipper, The.....mus-fan-c AY
—	3	9	Good Die Young, The (British).....cri-mel A
—	4	1	Gran Varieta (Italian).....com-c A
7	5	—	Great Adventure, The.....doc AY
2	12	—	Green Magic.....trav-c A
—	8	4	Green Scarf, The (British).....mys-mel A
—	1	5	Gun that Won the West, The.....wes-c AY
—	2	1	Hamido (Egyptian).....mel A
1	8	3	Heartbreak Ridge.....war-dr-c A
—	1	3	Hell's Gate (Japanese).....dr-c A
—	4	7	Hell's Island.....mel-c A
—	4	6	Hell's Outpost.....mel A
—	2	3	High Society.....com AY
—	2	8	Hiroshima (Japanese).....propaganda-war-dr A
1	7	9	Hit the Deck.....mus-com-c A
1	10	1	Holiday for Henrietta (French).....com A
1	8	2	House of Bamboo.....cri-mel-c A
—	7	2	How to Be Very, Very Popular.....mus-com-c A
—	5	1	I Cover the Underworld.....cri-mel A
—	3	6	Imposter, The (Japanese).....dr A
—	8	2	Innocents in Paris (British).....com A
5	7	4	Interrupted Melody.....mus-biog-c A
—	8	1	Intruder, The (British).....war-dr A
—	5	4	It Came from Beneath the Sea.....sci AY
—	4	1	Jail Bait.....cri-mel A
—	3	4	Jump Into Hell.....war-dr A
—	1	2	Jungle Gents.....com AY
—	1	7	Jungle Moon Men.....adv AY
2	7	6	Jupiter's Darling.....mus-com-c A
—	3	1	Kentuckian, The.....dr-c A
—	2	2	King's Thief, The.....adv-c AY
—	1	10	Kiss Me Deadly.....cri-mel A

A	B	C	
5	5	4	Lady and the Tramp mus-car-c AYC
—	7	8	Land of Fury (British) dr-c A
1	4	5	Land of the Pharaohs dr-c A
—	4	7	Las Vegas Shakedown mel A
—	7	5	Life in the Balance, A mel A
4	11	2	Long Gray Line, The dr-c AYC
1	6	5	Long John Silver adv-c A
—	4	6	Looters, The cri-mel A
—	2	3	Love in the City (Italian) dr A
4	9	4	Love Me or Leave Me mus-biog-c A
—	4	6	Ma and Pa Kettle at Waikiki com AYC
—	3	4	Mad at the World soc-dr A
—	6	8	Magnificent Matador, The dr-c A
6	9	1	Man Called Peter, A biog-c AYC
—	5	6	Man from Bitter Ridge, The wes-c A
3	5	2	Man from Laramie, The wes-c A
—	3	2	Man Who Loved Redheads, The (British) com-c A
—	12	5	Man Without a Star wes-c A
—	8	5	Many Rivers to Cross mel-c A
—	1	9	Marauders, The mel-c A
5	12	—	Marty dr A
—	1	2	Master Plan, The (British) mys-mel A
—	—	3	Mau Mau doc-c A
—	1	3	Midnight Episode (British) mys-mel A
12	2	2	Mister Roberts war-com-c A
—	2	3	Mile. Gobette (Italian) com A
—	9	6	Moonfleet adv-c A
—	3	—	Murder in Villa Capri cri-mel A
—	1	5	Murder is My Beat cri-mel A
—	—	3	Naked Amazon, The trav-c A
—	2	6	Naked Heart, The (Canadian) dr A
—	3	10	New Orleans Uncensored mel A
—	6	7	New York Confidential cri-mel A
—	7	—	Night Holds Terror, The cri-mel A
—	1	3	Night of the Hunter, The cri-mel A
—	2	1	No Way Back (German) war-mel A
4	6	9	Not as a Stranger dr A
—	1	5	One Desire dr A
—	—	3	Open Secret soc-mel A
—	—	3	Paid to Kill (British) mys-mel A
—	1	4	Pearl of the South Pacific mel-c A
1	4	1	Phenix City Story, The cri-mel A
—	4	5	Pirates of Tripoli adv-c A
—	2	1	Princess Cinderella (Italian) fan AYC
2	4	—	Private War of Major Benson, The com-c AYC
—	8	5	Prize of Gold, A war-mel-c A
—	5	13	Prodigal, The dr-c A
—	10	4	Purple Mask, The adv-c AYC
—	10	6	Purple Plain, The (British) war-dr-c A
—	1	2	Race for Life, A (British) mel A
—	9	9	Racers, The mel-c A
—	7	1	Rage at Dawn mel-c AYC
—	2	9	Revenge of the Creature m-d AYC
—	4	—	Road to Denver, The wes-c AYC
—	4	5	Robbers' Roost mus-wes-c A
—	11	6	Run for Cover mel-c A
—	—	7	Sabaka mel-c A
—	7	1	Santa Fe Passage wes-c AYC
1	3	2	Scarlet Coat, The hist-dr-c A
1	7	8	Sea Chase, The war-dr-c A
—	5	3	Sea Shall Not Have Them, The (British) war-dr A
—	—	9	Seminole Uprising mel-c AYC
—	5	6	Seven Angry Men hist-dr A
2	11	2	Seven Little Foes, The biog-c A
4	7	4	Seven Year Itch, The com-c A
—	7	5	Shotgun wes-c A
2	6	6	Shrike, The dr A
—	—	3	Silver Star, The wes AY
—	—	3	Simba (India) dr-c A
1	8	6	Six Bridges to Cross cri-mel A
—	—	3	Skabanga doc-c A
—	8	3	Smoke Signal wes-c AYC
—	7	9	Soldier of Fortune adv-c A
—	—	9	Son of Sinbad fan-c A
—	3	—	Square Ring, The (British) mel A

A	B	C	
—	9	4	Strange Lady in Town dr-c A
—	9	1	Stranger on Horseback mel-c AYC
—	7	3	Stranger's Hand, The (British-Italian) mys-mel A
5	9	2	Strategic Air Command war-dr-c AYC
2	10	4	Summertime dr-c A
—	—	4	Sunderin (German) dr A
—	4	4	Tall Man Riding wes-c A
—	1	7	Tarzan's Hidden Jungle adv A
—	4	5	Ten Wanted Men wes-c A
—	1	3	Tender Hearts dr A
—	1	2	Terror in the Night cri-mel A
—	3	11	That Lady (British) hist-dr-c A
—	4	2	They Were So Young soc-dr A
1	9	4	This Island Earth sci-c AYC
—	6	4	Three Cases of Murder (British) cri-mel A
—	4	12	Three for the Show mus-dr-c A
—	4	1	Tiger and the Flame, The (India) dr-c A
—	12	2	Tight Spot cri-dr A
—	4	7	Timberjack mus-mel-c AYC
1	3	—	To Catch a Thief cri-mel-c A
—	4	—	To Hell and Back war-dr-c AYC
—	7	4	To Paris With Love (British) com-c A
—	3	2	Too Young for Love (Italian) dr A
—	3	9	Top of the World dr A
—	2	8	Treasure of Ruby Hills wes AYC
—	5	3	Trouble in Store (British) com AYC
—	1	3	True and the False, The (Swedish) dr A
—	4	1	Ulysses (Italian) fan-c A
1	9	7	Underwater! mel-c A
—	5	10	Untamed mel-c A
—	11	8	Violent Saturday mel-c A
1	6	5	Wages of Fear, The (French) propaganda-dr A
—	3	2	Wakamba doc-dr-c A
—	2	6	Wayward Wife (Italian) dr A
1	7	6	We're No Angels com-c A
1	9	2	White Feather wes-c A
—	4	1	Wichita wes-c AYC
—	5	9	Women's Prison soc-dr A
—	4	5	Wyoming Renegades wes-c A
—	—	5	Yellowneck war-dr-c A
2	3	1	You're Never Too Young mus-com-c A

Reissues (oldtimers you may have seen before) as previously rated in the CR Bulletin indicated:

A	B	C	
7	9	—	Anchors Aweigh (March '46) mus-com-c AYC
3	12	2	Asphalt Jungle, The (Dec. '50) mel A
5	7	3	Battleground (Apr. '50) war-dr A
—	12	5	Berlin Express (Dec. '48) war-mel AY
1	8	8	Big Sleep, The (Apr. '47) cri-mel A
—	12	1	Big Street, The (Jan. '43) dr A
—	4	3	Black Eagle (Apr. '49) dr A
13	5	1	Bringing Up Baby (Dt. Dec. '38) com AYC
1	13	4	Champion, The (Nov. '49) mel A
—	11	5	Every Girl Should Be Married (June '49) com AY
3	11	4	Home of the Brave (Jan. '50) propaganda-dr A
5	12	2	I Remember Mama (Oct. '48) com AYC
1	5	4	Miss Grant Takes Richmond (Apr. '50) com A
—	13	4	Petty Girl, The (March '41) com-c A
3	11	3	Reap the Wild Wind (Nov. '43) mel-c AYC
—	11	5	Return of October (July '49) com-c A
4	9	4	Saratoga Trunk (June '46) mel A
5	12	2	She Wore a Yellow Ribbon (Apr. '50) wes-mel-c AYC
—	8	4	They All Kissed the Bride (March '43) com A
5	11	—	Twelve O'Clock High (July '50) war-dr A
1	14	1	Window, The (Dec. '49) mys-mel AY
18	—	—	Wizard of Oz (Dt. March '40) fan AYC

The Consumers' Observation Post

(Continued from page 4)

TRY READING THE INGREDIENTS ON THE LABEL of some of the packages found in the supermarket the next time you do the family shopping on a leisurely day. The type is so minute in some cases that a magnifying glass is needed. The food editor of Woman's Day recently noted that microscopic type seems to be used by most food manufacturers for printing instructions for preparation and that such information is placed in the most obscure spot on the container in some cases. She pointed out that small black type on a blue background is almost illegible. She might have added also that white on clear cellophane is equally difficult to decipher.

* * *

COATS MADE OF FUR-TYPE FABRICS are already showing signs of great popularity. They are sold under a wide variety of brand names, including: "Borgana," "Beavalon," "Bevaglo," "Cloud No. 9," "Sabelure," "Nutra," and "Furlana." The fabrics are of duPont fiber, Orlon, blended with dynel, and may be either knitted or woven. They require special handling in dry cleaning, and some manufacturers recommend the method used for cleaning furs.

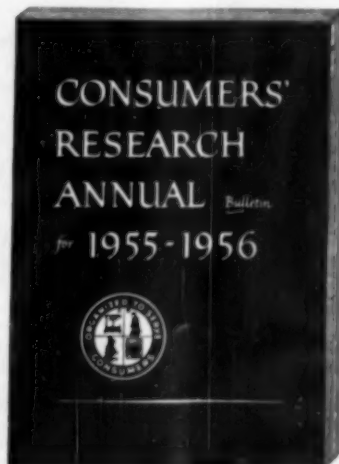
* * *

ADVERTISING FOR TV SETS has received particular attention from the Federal Trade Commission, which recently drew up and put into effect a set of trade practice rules for the radio and television industry. There are 32 rules which cover a wide range of misrepresentation from the type of wood used in a radio or TV cabinet to false disparagement of competitors' products. The advertiser who claims that a television set has a 24-inch screen will be guilty of a violation of F.T.C. rules if it does not measure a full 24 inches, and that means the horizontal distance between the sides of the picture, not including the frame.

* * *

THE USE OF COAL-TAR HAIR DYES has recently been re-examined by the Federal Food and Drug Administration. According to a letter from the Federal Food and Drug Commissioner, George P. Larrick, discussed in a drug trade journal, the F. & D. Admin. recently made an extensive re-evaluation of the potential hazards associated with the use of amine and aniline hair dyes. The letter made the point that, although these dyes are potentially toxic in sensitive individuals and a patch test should be made before the

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You still have an opportunity to order the Annual at the old rates in combination with a subscription to the monthly Bulletin—if you act promptly. Please turn page for rates and a handy order form.

initial use of hair dyes, there was no plan to institute any major change in the F. D. & C. regulation of coal-tar hair dyes. It is generally agreed that this type of hair dye is more satisfactorily applied by a skilled beautician, although it is also available for home use. It may be identified by the warning required on the label "Caution: This product contains ingredients which may cause skin irritation on certain individuals and a preliminary test according to the accompanying directions should first be made. This product must not be used for dyeing eye lashes or eye brows. To do so may cause blindness."

* * *

REMOVAL OF SUPERFLUOUS FAT in a particular area of the body, often referred to as spot reduction, just can't be done. That is the considered opinion of the Journal of the American Medical Association. The editor points out that only through continued perserverance in a general weight reduction program can a particular area be affected, and various mechanical devices will provide no special solution to the problem.

* * *

PAINT FOR INTERIOR USE by the do-it-yourself home workman has been subject to a new regulation by the New York City Health Department. That city now requires that a warning label be placed on all cans of interior paint containing more than one percent lead in order to help cut down on the number of cases of lead poisoning that occur when children eat chips of paint containing this very poisonous substance. Paint products properly labeled in accordance with this provision may read "Conforms to American Standard Z66.1-1955 for Use on Surface Which Might Be Chewed By Children." Homeowners in other localities with small children in the family will do well to have this provision extended by state law or city ordinance to products sold in their section of the country.

* * *

NEW OR NEWLY TESTED:

Home Board (Cardinal Wood Products Co., Skokie, Ill.; Sears-Roebuck's Cat. No. 11--04125) \$2.39, plus postage. This device was a piece of perforated hardboard approximately 20 x 24 inches, white on one side, brown on the other, a white shelf approximately 4 x 20 inches, 4 screws, 8 washers, 15 hooks, and 15 hook-holding springs. The device was intended to provide wall storage for tools, pans, cutlery, and other utensils in order to save space and make various items readily available. It was found to be easily installed and the instruction sheet was clear and simple in its presentation. For those who do not have cupboard and drawer space it would be an effective storage device and would be a convenient addition to the kitchen or home workshop.

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Phonograph Records

BY WALTER F. GRUENINGER

Please Note: The first symbol applies to quality of interpretation, the second to fidelity of recording.

Bach: *Organ Music*. Heiller (organ). Epic LC 3132. \$3.98. Five works including the great "Toccata" and "Fugue in D Minor," "Prelude and Fugue in D Major." Recorded in the Reformed Church, Thalwil, Switzerland. Heiller brings an uncommon lyric quality to his playing. The recording gives the illusion of a church performance except for the fairly constant volume. AA A

Bartok: *Sonata No. 2* & **Ravel:** *Sonata*. Druian (violin) Simms (piano). Mercury MG 80000. \$3.98. Best of three sonata disks played by these musicians. Neat ensemble, but the interpretation falls short of the ideal. Simms tops Druian who introduces slides and shifts not employed by the best violinists. A A

Brahms: *Sonatas Nos. 1 and 2 for Cello and Piano*. De Machula and Mikkila. Epic LC 3133. \$3.98. Wise coupling of two of the foremost works in this medium. No. 2 is played with the excitement and mysterious quality it demands, but No. 1 almost dies en route. No question of the technical skill of these performers. Well-balanced recording. B AA

Janáček: *Tagebuch eines Verschollenen*. Ernst Hafliger (tenor) Cora Canne Meyer (mezzo). Epic LC 3121. \$3.98. Moving, unconventional song cycle first performed in 1921. Sung in German and very ably. Excellent recording. AA AA

Mendelssohn: *Symphony No. 3* ("Scotch"). Netherlands Philharmonic Orchestra under Goehr. Musical Masterpieces Society MMS 60. \$1.90. (43 W. 61 St., N.Y.C.) An acceptable performance and recording of a Mendelssohn staple available on two sides of a low-priced 10-inch disk. A A

Mozart: *Famous Soprano Arias*. Hilde Zadek (soprano). Epic LC 3135. \$3.98. Seven concert and opera arias sung with some effort in the highest registers, too little power in the lowest. Monotonous when heard at one sitting. Well recorded. B AA

Piston: *Symphony No. 4* & **Schumann:** *Symphony No. 6*. Philadelphia Orchestra under Ormandy. Columbia ML 4992. \$4.98. Columbia's "festival" release of LP's devoted to modern music (I have heard 10 disks) here reaches its peak. The music appeals more than most of the other pieces released, and it is superbly played and recorded. Piston's is the better work. AA AA

Rachmaninoff: *The Isle of the Dead* & **Dukas:** *La Peri*. Paris Conservatory Orchestra under Ansermet. London LL 1155. \$3.98. There's no important competition for either of these pieces. The atmospheric Rachmaninoff tone poem is especially welcome. AA AA

Ravel: *Daphnis and Chloé*. Minneapolis Symphony Orchestra under Dorati. Mercury MG 50048. \$4.98. Offered as a complete recording of the ballet, the only competition is Ansermet on London LL 693 which is very formidable competition. But Dorati and his men play well, and they are brilliantly recorded. A AA

Roussel: *Petite Suite for Orchestra, Concerto for Small Orchestra, Concerto for Piano and Orchestra, Sinfonietta for String Orchestra*. Orchestre des Concerts Lamoureux under Sacher. Epic LC 3129. \$3.98. Roussel, who died in 1937, was more highly regarded in France than here. Yet I congratulate Epic for making four of his works available on one disk. They remind me of d'Indy. The playing is a revelation and the recording satisfactory, if not as clear and high ranged as today's best. AA A

Strauss: *Ein Heldenleben*. Philadelphia Orchestra under Ormandy. Columbia ML 4887. \$5.95. Noisy, discordant, heroic music remarkably played, sensationallly recorded. AA AA

Amor, Amor. Orquesta Zarzuela de Madrid under Torroba. Decca DL 9788. \$3.98. Light Spanish music, appropriate for background, featuring in solo passages the oboe and violin. For most of the numbers the voice would have been more appropriate. Well played and recorded. AA AA

Fiesta in Madrid and Ole, Ole. Orquesta Zarzuela de Madrid under Torroba. Decca DL 9735 and DL 9736. \$4.98 each. Each disk offers 12 pieces from Spanish Zarzuelas which are akin to Viennese Operettas though they have a spicy flavor all of their own. Brilliant, passionate, light music—castanets, tambourine, cymbals, for panto-doble, passacaglia, habanera, zapateado. Played with zest and sentimentality as required. Close in, wide range, Spanish recording. AA A

Forever the Waltz. Vienna Bohemian Orchestra under Fried Walter. RCA Victor LM 1876. \$3.98. "Blue Danube," "Voices of Spring," "Vienna Woods," etc., played as you are not likely to have heard them played before. Some tricky orchestral effects including solo passages for zither and harp and lots of *Schwung*. Typical Viennese. Satisfactory recording. AA A

Hubert Barwahser (flute). Epic LC 3134. \$3.98. With the Vienna Symphony Orchestra under Paumgartner, this virtuoso flautist plays Concerti by Quantz and Gluck, the famous "Dance of the Spirits" by Gluck, and an Andante by Mozart. Warm, rich tone from Barwahser and bright accompaniment. Very well recorded. An outstanding disk for this group. AA AA

Memories of the Vienna Theatre. Hilde Guden (soprano). London LL 1116. \$3.98. Enchanting medley of operetta music by Lehar, Strauss, Kreisler, Kalman, etc., most of which is sung delightfully by Miss Guden and chorus, some of which is played by the Vienna State Opera Orchestra. AA AA

Music for a Summer Night. Boston Pops Orchestra under Fiedler. RCA Victor LM 1910. \$3.98. Orchestral arrangements of "Liebestraum," "Liebesleid," "Faust Waltzes," "Kammenoi-Ostrow," and six other pieces. The first movement of the "Moonlight Sonata" lacks cohesion in playing and arrangement; the violin solo in "Caprice Viennois" is carelessly played. Otherwise, good performance and recording. A A

Roland Hayes Sings The Life of Christ (tenor). Vanguard VRS 462. \$4.98. A collection of spirituals arranged as a cycle which Mr. Hayes sings with unusual depth and expression, well recorded; piano tone muffled. AA A

The Sounds and Music of the RCA Electronic Music Synthesizer. RCA Victor LM 1922. \$3.98. The RCA Synthesizer can produce any tone and may be employed some day by composers in place of musicians. On this disk, RCA demonstrates the possibilities of tone production by the new instrument, offers some pieces and leaves me with the impression that the sounds which come forth resemble those of a deflating bagpipe, a carousel organ, an harmonica, but never precisely the sound of instruments with which we are familiar. But why should they? Maybe some new musical sounds would be a good thing. A narrator ably illuminates the proceedings.



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